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COLEOPTERA.

CHRYSOMELIDÆ.

(GALERUCINÆ.)

BY

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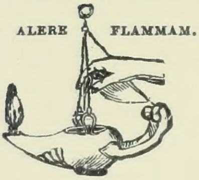

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AUTHOR'S PREFACE.

By the publication of this book—my third volume in this series—the self-imposed task of studying the Chrysomelidæ of India, Burma and Ceylon is concluded. The enthusiasm of youth was responsible for the undertaking; but its fulfilment in middle age robs one of much of the satisfaction which would otherwise be felt. Time alters values. The beginnings and endings of all human undertakings are blurred, ill-defined, confused.

Between the hours of eleven and twelve at night on the 27th June, 1787, after writing "the last lines of the last page" of the *Decline and Fall of the Roman Empire* in his summer house at Lausanne, Edward Gibbon took several turns in the covered walk of Acacias and regarded the peaceful prospect of the country, the lake and the mountains; all nature was silent. When the first emotions of joy at the recovery of his freedom had subsided, he records, "a sober melancholy was spread over his mind by the idea that he had taken his everlasting leave of an old and agreeable companion." I can well appreciate the sense of freedom, but I confess I have not experienced any form of sadness on finishing my account of the "*Rise and Spread of the Chrysomelidæ of the Indian Empire,*" for the Chrysomelidæ are always with me; they come from all parts of the world; they crowd upon me. Never did I realize better what power dead beetles can have over living man.

The first difficulty in the study of the GALERUCINÆ was the lack of a reliable character by which this group could be differentiated from the HALTICINÆ. I solved this by the discovery of the femoral organ, and this criterion is being increasingly used by entomologists. Many characteristics of this group have led me to special studies which have resulted in interesting anatomical discoveries. I have introduced new ideas and new methods in this study, building up a picture which, though tentative in parts—and this is inevitable—will, I hope, present a complete idea of the group as a whole.

In the production of this book the co-operation and skill of many people have been needed, and I wish to record my sense of indebtedness to them.

Mr. N. D. Riley, the Keeper of the Entomological Department, has facilitated my research in the British Museum.

Dr. K. G. Blair, Deputy Keeper, and Mr. W. H. T. Tams, Assistant Keeper, have cheerfully borne the brunt of my discussions and discoveries.

Dr. A. G. Böving, of the United States Department of Agriculture, from whom I have differed in some aspects of the study, has by his scientific temper of mind and affability co-operated with me. He has also sent me some of the larval material of the Washington Museum for study, for which I wish to record my thanks.

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Dr. I. Arwidsson, of the Uppsala University Museum, has also very kindly supplied me with drawings from types in his charge.

Professor Thomas Barbour, of the Museum of Comparative Zoology at Harvard College, has very kindly answered my questions in reference to some of Jacoby's types which are in his Museum.

In the bibliographical research I have consulted many works in the library of the Imperial Institute of Entomology, where Mr. C. J. Golledge has always very courteously placed his knowledge at my disposal.

Miss J. Stephens, of the library of the Royal Entomological Society of London, has rendered very efficient service in my bibliographical work, for which I wish to record my warm thanks.

Mr. G. E. J. Nixon, of the British Museum, has been very kind in helping me with the index of plants.

Mr. G. B. Thompson, of the British Museum, has in his spare time voluntarily rendered service by looking after my things in the Museum, and I wish to record my appreciation of his assistance.

The illustrations are the work of many artists, and among them I would like to mention Miss Joyce Townend and Miss Barbara Hopkins, whose work I have felt to be of real assistance to me. Several illustrations have been borrowed from my works which appeared in the publications of the Zoological Society of London, and acknowledgments for the loan are duly recorded here.

Miss G. G. Lowes, of Messrs. S. K. Dutt of the City of London, has very kindly given me office assistance, for which I have pleasure in expressing my thanks, and also I wish to convey my appreciation to the principal of the firm.

To the Editor, who has given me much assistance in his official capacity, I wish to record my warm thanks.

Last, but not least, to the Reader of the press, who generally does not come in for the thanksgiving ceremonies, I wish to extend a word of praise, for his vigilance has been of much assistance to me.

S. MAULIK.

London,
November 15th, 1935.

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113. Footnote : *read* p. 336 *for* 236. (See footnote, p. 627.)

114. Line 14 from bottom : read *Rhombopalpa* for *Rhombopala.*

120. Line 5 from bottom : read *kanarensis* for *kanara.*

318. Line 25 from bottom : *read* viii, 1 *for* ii. (See footnote, p. 625.)

Order COLEOPTERA.

Family CHRYSOMELIDÆ.

Part I.—GENERAL.

INTRODUCTION.

THE large family CHRYSOMELIDÆ, comprising about 20,000 species, has been divided into groups and subfamilies as follows :—

EUPODES	1. Sagrinæ.
	2. Donaciinæ.
	3. Orsodacninæ.
	4. Criocerinæ.
CAMPTOSOMES	5. Megascelinæ.
	6. Megalopodinæ.
	7. Clytrinæ.
	8. Cryptocephalinæ.
	9. Chlamydinæ *.
CYCLICA	10. Lamprosominæ.
	11. Eumolpinæ.
	12. Chrysomelinæ.
TRICHOSTOMES	13. Galerucinæ.
	14. Halticinæ †.
CRYPTOSTOMES	15. Hispinæ.
	16. Cassidinæ.

Out of these sixteen subfamilies one, namely, MEGASCELINÆ, is not known to occur within our faunistic limits. The first eleven subfamilies have already been dealt with by the late Mr. Martin Jacoby in this series (Coleoptera, 1908) ; the last

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* Laboissière, in Bull. Soc. Ent. France, 1929, pp. 256–58, has discussed the reasons why the name CHLAMYDINÆ should be given up and FULCIDACINÆ adopted in its place.

† Although in the present work the name of this subfamily is spelt with the initial " H," I have explained elsewhere why I have decided not to use it.

two, Hispinæ and Cassidinæ (Coleoptera, 1919), and the Chrysomelinæ and Halticinæ (Coleoptera, 1926) by the present writer. The subfamily Galerucinæ forms the subject of the present volume. As was explained previously (Coleoptera, 1926, p. 1) it would be more appropriate to treat the Galerucinæ and Halticinæ together, but the great extent of the former does not allow of such treatment in one volume.

Subfamily GALERUCINÆ.

Number of Species.

The Galerucinæ is a large group of Coleoptera which without exception live on green plants. Up to the present there are about 4000 reported from all parts of the world. Of these some 417 occur within our faunistic limits.

Size.

The beetles of this subfamily show considerable diversity in size, the smallest (*Neorupilia flava* Lea, Tasmania) being about 2 mm. in length, while the largest examples are contained in the genera *Monocesta* Clark (Mexico, Central and South America), *Doryxena* Baly (India), and *Aplosonyx* Duponchel & Chevrolat (India, Indo-Malaya, Burma, Sumatra, Java and other adjacent islands). For example, *Monocesta equestris* Clark is 18 mm. in length, *Doryxena geniculata* Baly 16 mm., and *Aplosonyx albicornis* Wiedemann 17 mm. Some of the species show a great expansion in the breadth also, especially of the posterior part of the body, and this renders the appearance of these insects conspicuous.

Coloration.

A large majority of species of the Galerucinæ are dull brown, but a great number are shining, some even showing a combination of brown, black and blue and blue-black in the same species. There are, however, some genera which contain brilliantly coloured insects, and some of those that are found within our faunistic limits are shown in the coloured plate. The elytra may have transverse bands or longitudinal stripes; in many species the elytra are spotted. In the brilliantly coloured insects the prevailing colours are blue and blue-green, often mixed with purple. The genera *Monocesta* Clark (Mexico, S. America) and *Aplosonyx* Dup. & Chv. (Indo-Malayan region) contain the most conspicuously coloured species; in the former case the insects are green with a yellow transverse band, and in the latter case they are of a brilliant metallic blue. In our regions the genus *Periclitena* Weise exhibits insects with a brilliant purple suffusion; while *Apophylia* Dup. & Chev. contains species possessing a green or blue-green colour.

Orientation adopted.

In the description of a Galerucine beetle, in order to facilitate reference to the different parts of the body relative to one another, the following orientation is adopted (see fig. 1). The insect is placed with the ventral side downwards on a horizontal plane and is viewed from a position vertically above. A circle is drawn round the beetle with a point on the pronotum just in front of the scutellum as the centre, and through it are drawn two lines at right angles to each other, a longitudinal and a transverse. The beetle is bilaterally symmetrical along the longitudinal line—that is to say that, corresponding to an organ or a part which occurs on the left-hand side of the longitudinal line, there will be a similar organ or part on the right-hand side. Any point on the beetle

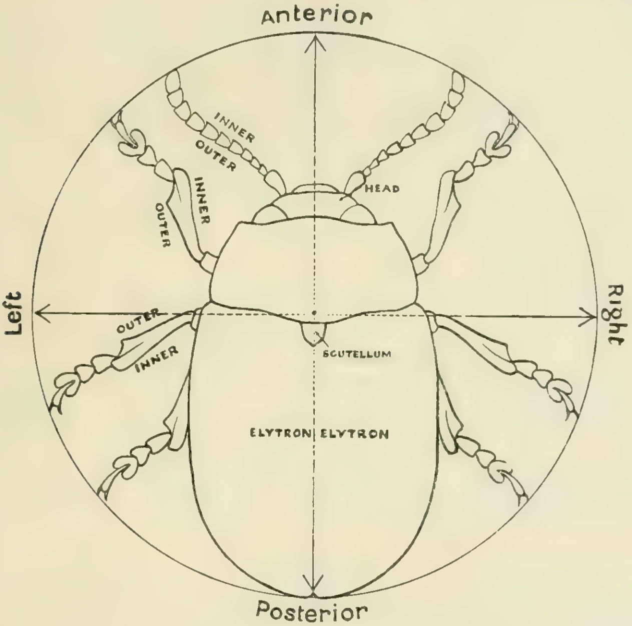

Fig. 1.—Diagram to indicate the orientation, adopted in this work, of the different parts of a beetle relative to one another.

which is nearer the centre is said to be "basal" relative to another point which is farther away from it. Conversely any point on the beetle that is nearer the circumference is "apical" relative to a point which is nearer the centre. It follows that all extremities of the insect are "apical." The terms "inner" and "outer" are used in the following way: the parts which are nearer to the longitudinal line are "inner" in reference to those that are farther away from it, and the parts which are more remote from the longitudinal line are "outer" in reference to those that are nearer. It must be explained that with regard to an antenna a point termed "inner" relative to one which is "outer" will maintain the relation however much the antenna deviates from its initial position of coincidence with the longitudinal. But this cannot be said with regard to the legs; therefore it is necessary to conform to a conventional position, and this is shown in fig. 1. When the three legs on each side are in the position indicated "inner" and "outer" are used with reference to the middle longitudinal line. Owing to the depth of the insect the terms "dorsal," "above," or "upper," and "ventral," "below," or "lower" will be used. For example, when it is stated "there is a deep hollow below the humerus" it is meant that the "hollow" is situated at a point which lies at a level lower than that of the humerus.

It has been considered necessary to explain this orientation because in the writings of earlier entomologists on CHRYSOMELIDÆ the terms "upper" and "lower" are used in a different sense. By them the terms "upper" and "lower joints" of antennæ are used for the apical and basal segments respectively, and by "lower portion of elytra" is meant the apical part, and so on.

Structure.

Seen from above in the body of a Galerucine beetle three main regions are recognizable—the head, the prothorax and the elytra. Between the prothorax and elytra in the middle is situated a small triangular piece called the *scutellum*. The *head* contains the principal organs of sense—the antennæ and eyes—and the mouth-parts. The head is well developed, never hidden in the prothorax, capable of considerable movement and generally narrower than the breadth of the prothorax; when the latter is narrow the head is as broad as the anterior end of the prothorax. On each side of the head is a convex *eye*. This is always oval and entire—that is, it is never anywhere so deeply emarginate as to be almost divided into two parts. The convexity varies, but not to a great extent. Posterior to the eyes a large area in the middle, generally convex, will be referred to as the vertex of the head. The interocular space contains several structures which have been used in systematic determination. This space may be slightly depressed or plane ; sometimes it has a median impressed line ; it may be smooth or punctate and is sometimes covered with hairs. In some species the median impressed line is joined anteriorly by two oblique lines, one on each side. The *antennæ* are situated very close together in front between the eyes. Throughout this subfamily the proximity to one another of the roots of the antennæ is a constant feature. For example, the base of an antenna will never occur below the corresponding eye, neither will the roots of the two antennæ be found separated by the whole width of the head. The length of an antenna relative to that of the body varies considerably. It may be only a little longer than the length of the head and pronotum, or it may be much longer than the whole body. For example, in *Cerochroa ruficeps* Gerst. (Mozambique) the antenna is 3·5 mm. long, while the insect is 12·5 mm. ; in *Gastrida abdominalis* Chapuis (Abyssinia) the antenna is 2·5 mm. long, while the insect is 6 mm. ; in some species of *Mimastra* Baly the length of the insect is slightly less than 5 mm., while that of the antenna is more than 8 mm. *Luperus* is another genus in which the antennæ have become greatly elongate. An antenna in this subfamily is always composed of eleven segments. In the HALTICINÆ it may be reduced to ten or nine, but in the GALERUCINÆ no such instance has hitherto been discovered. In most cases the first segment is long and slightly curved outwards. The relative lengths of the different segments vary, and will be indicated in the description of each genus. The root of an antenna may be placed in a distinct cavity. Sometimes the cavity is large, with its boundaries rather elevated, and in

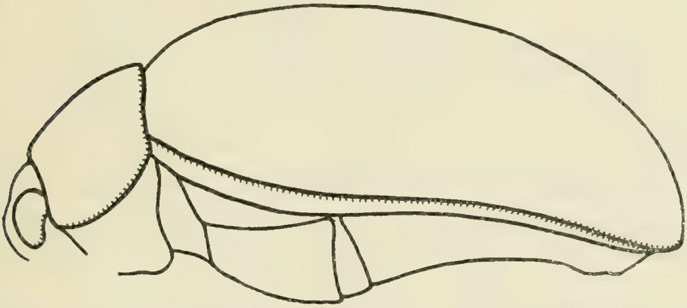

Fig. 2.—Diagram to show the depth of a beetle, indicating an upper or dorsal and a lower or ventral surface.

such a case the roots appear to lie apart from each other The interantennal space is generally narrow and often contains a deep longitudinal impression, on each side of which there is a longitudinal elevated ridge which may slightly expand towards the vertex or may vary in height, etc. ; these elevated portions, whenever they occur, will be referred to in the descriptions as *frontal ridges* or *elevations* or *tubercles*. In many cases they are not developed, the frontal area being quite flat.

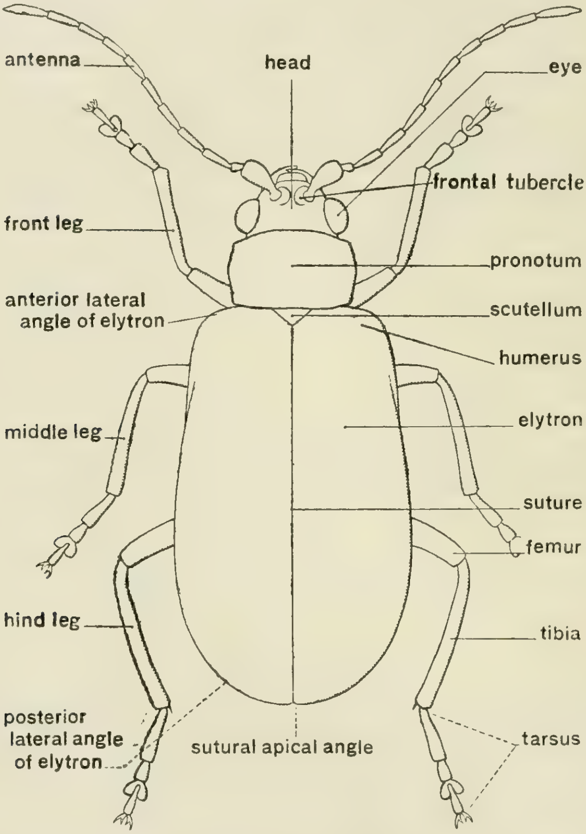

Fig. 3.—Dorsal aspect of *Aulacophora foveicollis* Lucas.

In many genera the antenna of the male undergoes curious modifications. An interesting structure in connection with this sexual modification (Maulik, Proc. Zool. Soc. Lond. 1933, pp. 943–956) is briefly described here. It is well illustrated in the genus *Agetocera*, which occurs within our faunistic limits. In this genus the species show two or more distinct secondary sexual characters in the male, and of these the modification of the antenna is the most obvious. Counting the basal segment as the first, the eighth and ninth or the ninth and tenth segments have undergone characteristic modifications. Corresponding with the enormous enlargement of the eighth or ninth the other basal segments have also been modified and have become shorter but broader at the apex, assuming the shape of a funnel. The degree of this modification of the basal segments depends upon the degree of enlargement of the eighth and ninth segments : the larger the latter have

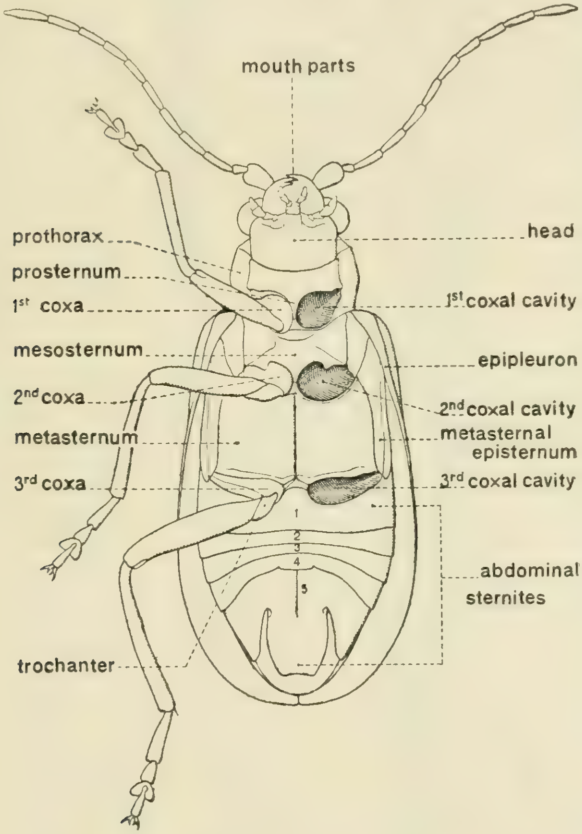

Fig. 4.—Ventral aspect of *Aulacophora foveicollis* Lucas.

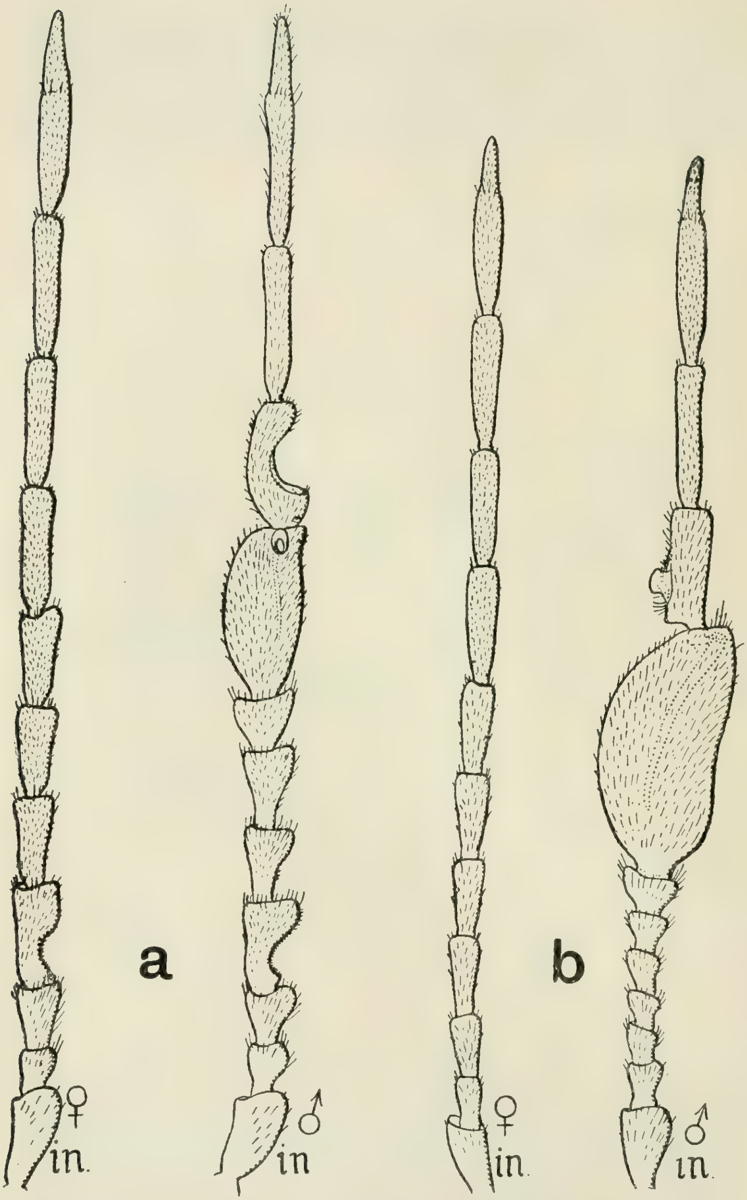

Fig. 5.—*a*, ♂ & ♀ antennæ of *Agetocera mirabilis* Hope; *b*, ♂ & ♀ antennæ of *A. chapana* Labssr.; *in.*, inner side of antenna.

become, the more the funnel-shaped structure has been accentuated. In the female the eighth and ninth are not enlarged and all the segments are cylindrical; the basal segments maintain a certain ratio in length relative to one another, but they are always much longer than the corresponding segments of the male, so that whatever may

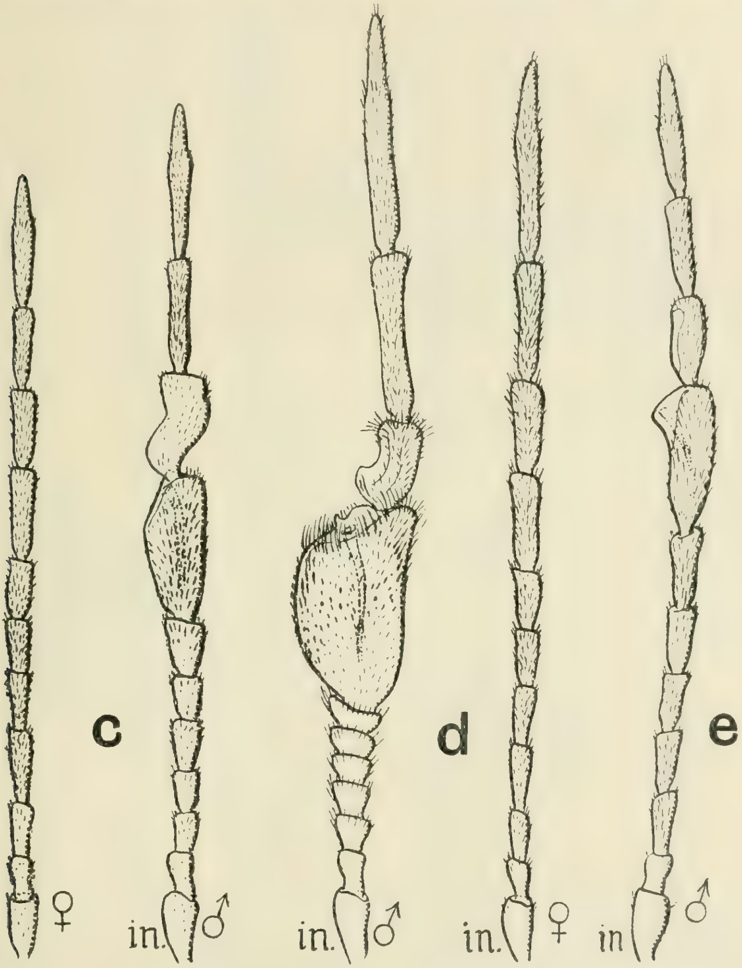

Fig 6.—*c*, ♂ & ♀ antennæ of *Agetocera flaviventris* Jac.; *d*, ♂ & ♀ antennæ of *A. hopei* Baly; *e*, ♂ antenna of *A. manipuria* Mlk.; *in.*, inner side of antenna.

be the extent of modification in the eighth or ninth segments in the male the general equality in the lengths of the male and female antennæ is maintained. The tenth and eleventh

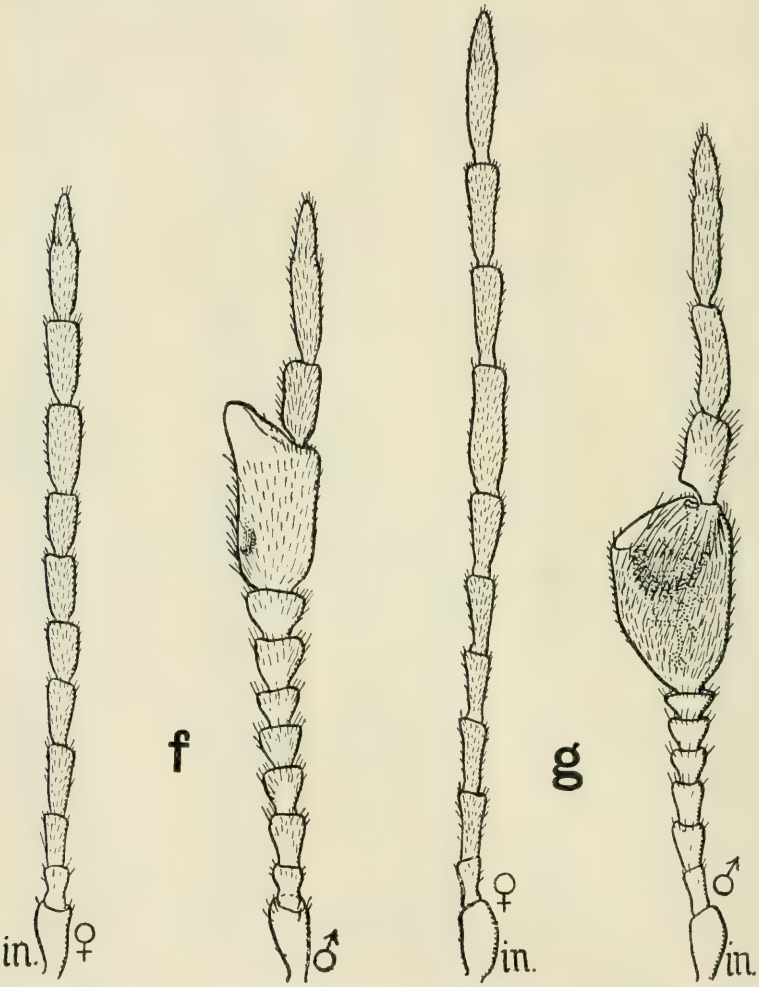

Fig. 7.—*f*, ♂ & ♀ antennæ of *Agetocera lobicornis* Baly; *g*, ♂ & ♀ antennæ of *A. birmanica* Jac.; *in.*, inner side of antenna.

segments in both sexes are long, more or less cylindrical, and more thickly covered with hairs. The apex of the eleventh segment in both the male and female is gradually tapered, ending in a point in such a way that it seems as if it were a separate segment. It is clear that the modification in the male antenna affects the basal segments more than it does the apical.

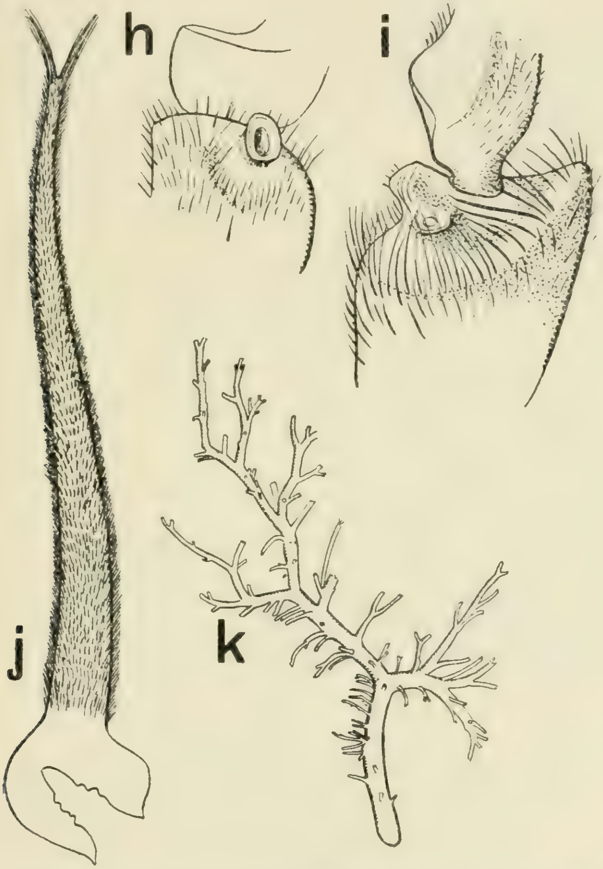

Fig. 8.—*h*, the apical part of the eighth and the basal part of the ninth segment of antenna of *Agetocera mirabilis*, showing the structure round the orifice ; *i*, the apical part of the eighth and the basal part of the ninth segment of antenna of *A. hopei*, showing the processes and the position of the orifice ; *j*, the internal tube in *A. hopei* ; *k*, the internal tube in *A. birmanica*.

It will be seen from the illustrations that the form and structure of the critical segments in the various species of *Agetocera* are different, and it has been found that they are characteristic for each species, so that if the males are known the species can be separated by the form of these segments alone. Whatever may be the particular form of these critical segments it is a fact that they are closely associated in function. When the eighth is modified the ninth is articulated at a special place on the eighth and is itself so modified that they may function together. The modified eighth segment of any particular form contains a specialized area near the apex, generally smooth and shining. At a particular place on the smooth area is a circular orifice with a raised rim. The orifice leads to a tube inside the segment. The reality of this tube has been tested by introducing a fine flexible bristle which passed down to the end of the tube without difficulty. In the forms studied two types of tube can be distinguished. In one type it is long, occupying two-thirds or more of the space inside the segment, broader at its point of attachment but gradually tapering towards its end. This type occurs in *A. hopei* and other species. The second type, which occurs in *A. birmanica*, consists of a main tube of a larger diameter branching and rebranching in many directions. From these branches tubules of smaller diameter ramify in various ways. Under a low magnification the main tube of the first type has the appearance of being covered with " hairs," with a fine fringe on each side. These are the stumps of the tubules that still remain attached to the main tube when the rest of the tubule has almost disappeared after treatment in potash. In some cases after a prolonged treatment in potash and then in acetic acid the main tube has not been found. It follows from these facts that the tubular system is in varying degrees of sclerotization.

Summary :

(1) The eighth and ninth or the ninth and tenth segments are enlarged and variously modified in the males.
(2) In most species there is an external orifice situated in a specialized surface leading to an internal tubular system in the most enlarged segment.
(3) Two types of tubular system can be distinguished. In the one there is a long tapering tube from which arise tubules which spread in all directions and are imbedded in the surrounding cellular tissue. These tubules do not branch again. In the other there is a larger, many-branched tube from which smaller tubules branch and ramify in various ways.
(4) These tube-systems are in varying degree of sclerotization, probably varying in each individual.
(5) The form of the enlarged segments and the type of the

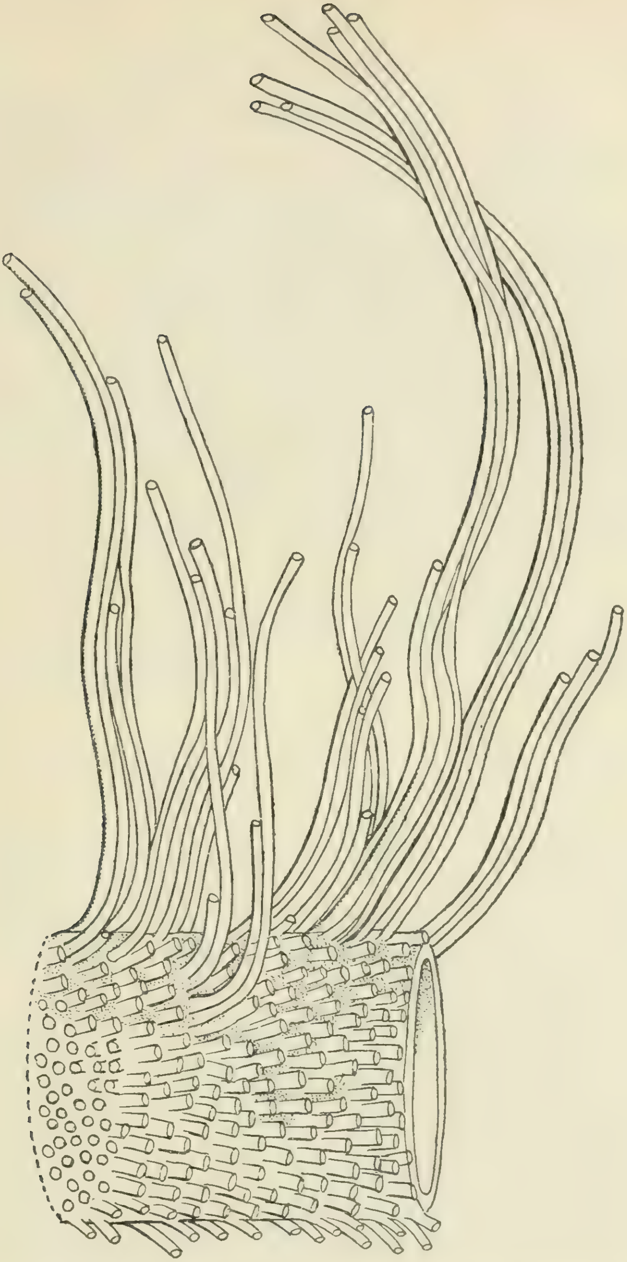

Fig. 9.—Diagrammatic representation of a small portion of the internal main tube, showing the structure and origin of tubules which arise from the walls of the main tube and ramify into the surrounding cellular tissue (not shown). Drawn from an unpotashed dissection under oil-immersion objective (× 1000). Note at the base of the main tube, where the tubules are broken off, the rings indicating that the tubules are actually hollow.

internal tubular arrangement are constant in a given species.

(6) The crisis in the male antenna affects the basal segments more than it does the apical, and owing to this the approximate equality of the lengths of the male and female antennæ is maintained.

(7) Probably the function of these internal structures is the dispersal of the products of secretion in relation to some aspect of sex activity.

Other cases in which modification of antennal segments of the male occurs are the following :—

In *Aulacophora* Chevrolat (Asia) many species contain modified antennal segments, the tubular structure occurring inside the most swollen segments of some.

In *Nirina imitans* Jac. (West Africa) the segments from the fifth to ninth are expanded, but the eighth and ninth are especially modified.

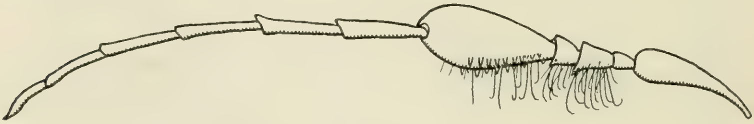

Fig. 10.—*Bequaertinia nodicornis* Labssr. ; antenna of male, showing specialized hairs. (After Laboissière.)

In *Xenoda spinicornis* Baly (Borneo, Sumatra) the segments from the third to seventh form an elongate club narrowing somewhat towards the apex ; the eighth is long, produced to a fine point and excised to a large extent on the outer side ; the ninth is very long ; the tenth and eleventh are much shorter.

In *Œdicerus cyanipennis* Redtb. (Kashmir) the fifth and sixth segments are very curiously modified.

The genus *Cerophysa* Chevr. (Asia) has several species in which these modifications are seen. In *C. nodicornis* Wiedm. (Java) the sixth and seventh segments are enormously dilated and modified on similar lines to those of *Agetocera*. In *C. andrewesi* Jac. (Nilgiri Hills) the segments from the second to sixth are similarly modified, while the seventh is enormously enlarged with specialized areas on it.

In *Xenarthra* Baly (Ceylon) the modification consists in considerable prolongations from the inner side of most of the antennal segments ; the tenth is greatly inflated and contains tubules.

In *Taumacera* Thunb. (Sumatra, Java, Borneo) the third segment is generally moderately swollen, but in one species it is enormously swollen.

In *Platyxantha* Baly (Africa, Asia) the ninth and tenth segments are enlarged.

In *Cerotoma unicornis* Germ. (Brazil) and in a few other species from South America the third and fourth segments of the male antenna are modified.

In *Bequaertinia* Laboissière (Africa) Laboissière (Rev. Zool. Afric. 1922, p. 175) records two species in which the fifth segment is greatly enlarged, and in *B. nodicornis* there are a number of filament-like structures projecting from third, fourth and fifth segments.

Such modification is not necessarily exhibited by all the species of a genus. In other words, a genus may contain some species which show the antennal modification in the male, while others do not show any modification at all, the male antenna not differing from that of the female.

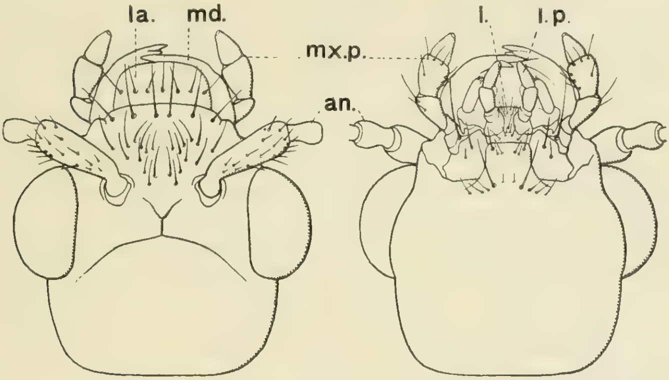

Fig. 11.—*Aulacophora foveicollis* Lucas; head, dorsal and ventral aspects. *an.*, antenna; *mx.p.*, maxillary palpus; *la.*, labrum; *md.*, mandible; *l.*, labium; *l.p.*, labial palpi.

From the details given above it follows that the Galerucinæ is a group in which this phenomenon of antennal modification in the male occurs frequently. Such modifications are not found in any other subfamily, not even in the Halticinæ, which are very closely allied.

The *antennæ* in the Galerucinæ are always covered with hairs. Generally speaking the basal segment has hardly any hairs, but they gradually increase in quantity as the apex is approached. All hairs are not similar, and some may be highly specialized, for example, in *Bequaertinia nodicornis*.

(On the subject of modification and specialization of hairs see Maulik, Proc. Zool. Soc. Lond. 1928, pp. 152–3.)

The *clypeus* is the sclerite on the antero-median part of the insect head, occupying the interval between the roots of the antennæ and the front of the oral cavity. It is generally of a triangular shape, the apex of the triangle being towards the roots of the antennæ. Usually the surface is longitudinally raised along the middle line, sloping down on each side. The surface may be either hairy or hairless. In some genera it is deeply excavated, the excavation containing various structures. This modification is, however, more pronounced in the male than in the female, *e. g.*, in *Macrima armata* Baly (India).

Mouth-parts.

In the intact insect these can be examined either from the dorsal aspect or from the ventral. For the purposes of the present work it will be sufficient to note the following parts. Seen from above, that is, dorsally, first there is the *labrum*, which is the uppermost lobe enclosing the oral cavity. It is rectangular, broader than long, with the front margin often slightly emarginate. Generally there are a few hairs on the upper surface, and sometimes the front margin bears a bunch of hairs. In shape it varies slightly, sometimes being square instead of rectangular. In GALERUCINÆ it is generally not large enough to cover the mandibles and so completely conceal them from view. The *mandibles* are a pair of articulated appendages which partly form the lateral margins of the oral cavity. They are strongly chitinized, being generally black at least towards the apex, which is furnished with a few sharp points technically called the "teeth." These are generally unequal in the same mandible, and are not so sharp in herbivorous beetles (like those of the present group) as they are in the carnivorous beetles. Lying ventrally to the mandibles are the *maxillæ*, a pair of composite movable organs which act in association with the mandibles in reducing the food to a suitable state before it can be passed into the mouth. Each maxilla is composed of a number of well-marked pieces. It consists of a principal piece called the *stipes*, which is articulated to the head by means of a smaller basal piece, the *cardo*. Terminally the stipes bears an outer lobe, the *galea*, and an inner lobe, the *lacinia*. The lacinia is provided with a bunch of hairs and bristles. On the outer side at the base of the galea is a four-segmented appendage, the *maxillary palpus*. Situated between the two maxillæ is the *labium*, the ventral portion of the external mouth-parts. It is provided with a pair of three-segmented palpi. All these parts are articulated with the sclerites of the cranium, but for the purpose of this work it is not intended to enter into the details of these structures. It is to be remembered, however, that these parts are articulated and are extremely movable, thus enabling the insect freely to bite, chew and reduce the plant tissues to a suitable condition for swallowing.

Viewed dorsally the apical segments of the palpi may be visible if they are long enough, but often they are not so. Some authors have used the thickness of the maxillary palpi to separate genera, but this was done when the material before them was not sufficient to reduce the value of the thickness as a differentiating character to its proper proportion.

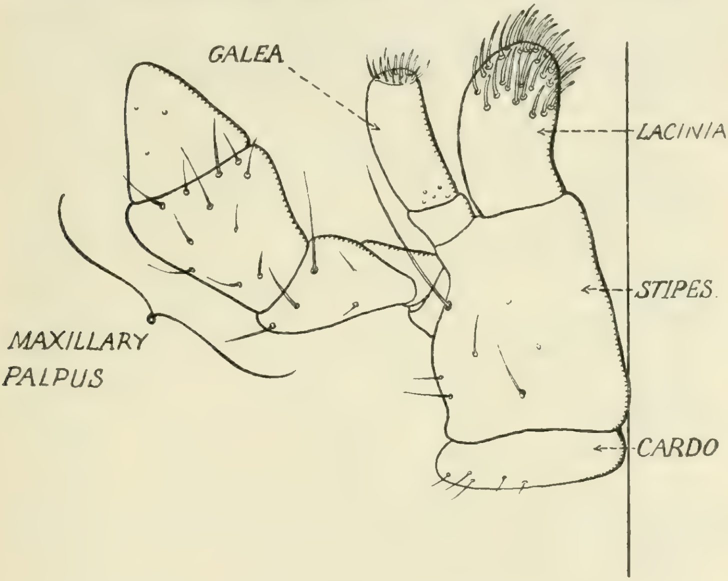

Fig. 12.—Diagram showing the parts of a maxilla.

Posterior to the head is a large portion called the thorax, which bears all the organs of locomotion, namely, two pairs of wings and three pairs of legs. The thorax is conveniently divided into three parts, the pro-, meso- and metathorax. Seen from above the upper part of the prothorax is prominent, the surface being called the *pronotum*. In Galerucinæ the pronotum is either rectangular or square, having a front or anterior edge, a hind or posterior edge and two lateral edges. Each of the four corners often bears tubercles or hairs. The pronotum varies a great deal; the surface may be plane or convex, or it may be rough or broken up in various ways. Whatever may be the details of the variations, the pronotum maintains the general form throughout the group. Posterior to the pronotum is a small triangular piece, which is the only portion of the *mesonotum* that is visible from above. The upper surface of the metathorax, the *metanotum*, cannot be seen from above, for it is entirely covered by the *elytra*. The relation between the width of the base of the elytra and that of the prothorax will be indicated throughout the group.

The elytra are the anterior pair of wings and are two strongly chitinized pieces which, when in repose, meet perfectly along the mid-dorsal line called the *suture*. Each elytron is hinged to one side of the mesothorax, and is movable. Close to the articulation of the elytron, and hinged with the metathorax, is the membranous wing, which is used when the insect flies, but in repose this remains folded under the elytron, and cannot be seen unless the latter are moved outwards. The surface of the elytron is generally pitted, and to this pitted condition the term " punctate " has been given. The surface may be confusedly punctate or the pits may be arranged in longitudinal " rows." Sometimes there is only a tendency towards a regular arrangement. On the underside of each elytron there is a longitudinal space along the outer margin which has been called " epipleuron." This has been made use of in separating genera in the classification below. Generally the surface has no clothing of hairs, although this condition occurs in some cases. In some cases the elytra are abbreviated. The following genera exhibit the abbreviated condition of the elytra :—*Ellopia* Chapuis (Tasmania, S. Australia) ; *Cydippa* Chapuis (Australia) ; *Rupilia* Clark (Australia) ; *Arima* Chapuis (Europe) ; some of the Indian species of *Galeruca*

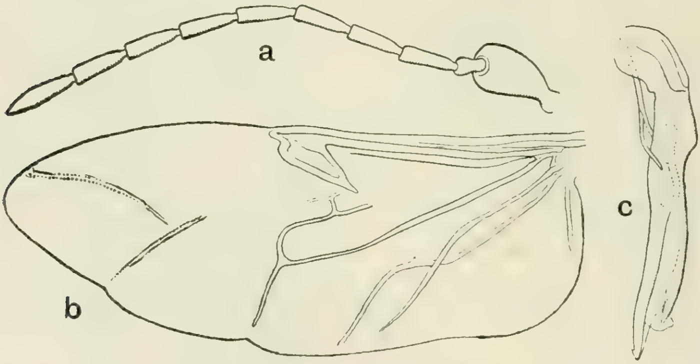

Fig. 13.—*Aulacophora foveicollis* Lucas ; *a*, antenna of male ; *b*, wing ; *c*, ædeagus.

Geoffroy & Fourcroy ; *Khasia* Jacoby (Nilgiri Hills) ; *Metalepta* Baly (Peru) ; *Metacycla* Baly (Mexico, South America) ; *Pseudorupilia* Jacoby (St. Helena) ; *Swargia* Maulik (Tibet) ; *Shaira* Maulik (Tibet, India). Attention may be drawn to the fact that this phenomenon occurs in species inhabiting high altitudes, and thus may have some significance in the problem of distribution.

The membranous *wing* of a Galerucine beetle is a comparatively simple structure. The system of veins, more complicated in those insects which have to use their wings constantly, has been considerably reduced in these beetles, which are not very active on the wing. In those cases where the elytra are abbreviated the wings are always absent, but in other cases they are sometimes absent. This phenomenon also occurs in other subfamilies of the CHRYSOMELIDÆ.

K. J. W. Bernet Kempers, in a paper entitled "Abbildungen von Flügelgeäder der Coleopteren" (Entomologische Mitteilungen, xii, 2, 1923, pp. 72–115), has figured 791 wings of all families of Coleoptera. Among these the GALERUCINÆ are represented by the following species :—*Aulacophora ancora* Redtb. (*Aplosonyx*), Java ; *Galeruca pomonæ* Scop. (=*Chrysomela rustica* Schall.), Europe ; *Galeruca tanaceti* Linn., Europe ; *Luperus flavipes* Linn., Europe, Siberia ; *Luperus longicornis* Linn., Europe ; *Sermylassa halensis* Linn., Europe, Siberia, Wisconsin ; *Haplosomoides unicolor* Ill. (=*Rhaphidopalpa serena* Boh.), India, Sunda Islands ; *Haplosonyx albicornis* Wiedm., Sunda Islands ; and *Platyxantha insignis* Baly (*Doridea*), Tringanee. The structure of these wings shows slight variations, not sufficient to indicate relationship.

If the underside of the beetle be examined many details of structure concealed from above by the elytra become visible. Only those structures that are relevant for the purposes of this work will be mentioned. The underside of the head has already been examined when dealing with the ventral mouth-parts.

The undersides of the pro-, meso- and metathorax are called pro-, meso- and metasternum respectively. The prosternum is free, the mesosternum and the metasternum are more closely united to one another and to the abdomen. A process extending backwards from the prosternum between the coxæ of the front legs and called the intercoxal process is of value in classification. The *legs* are attached to the three divisions of the thorax, and are fitted into them by means of ball-and-socket joints, giving a great range of motion. The ball portion is called the *coxa* and the socket is the *coxal cavity*. The coxal cavities belonging to the front and middle legs are round and situated in the respective sterna, while those of the hind legs are transversely oval and situated between the metasternum and the abdomen. Attached to the coxa is the *femur* or thigh, usually the stoutest part of the leg. It is strengthened at the base by a small supplementary piece, the *trochanter*, which forms an intermediate segment between coxa and femur. At the end of the femur is attached the *tibia*. To this is joined the *tarsus*, or foot, which apparently has four segments, of which the third is bilobed or deeply notched. The segment bearing the claws arises from the upper side of the base of the bilobed segment. Very often under all the segments there is a cushion of hairs. This type of tarsus is peculiar to those beetles which are phytophagous or plant-feeders. The claws in the GALERUCINÆ present features which have been used in separating the subfamily into groups. Three kinds of claws are to be distinguished, namely, bifid, appendiculate and simple. The expression " bifid claws " indicates that near the base and on the inner side of each claw there is another claw-like projection, which is generally smaller, and is occasionally minute, as in *Diorhabda*. It is in this sense that the term is used in this work, and not in the sense that the apex of the claw is split into two, a condition which occurs in many other groups of Coleoptera, and to which also the term " bifid claws " has been applied. By " appendiculate claws " is meant that at the base of each claw there is a large squarish projection which is not drawn out into a point. In some cases, as in *Leptarthra*, this projection is so large that seen from the front it looks as if the claw is bifid. " Simple claws " mean that neither of the two kinds of structures just described is present.

The Front Coxal Cavities.

In the HALTICINÆ the intercoxal process of the prosternum is always a broad piece, with a posterior end, which is sometimes truncate, and which sometimes sends off a lateral branch on each side. In the former case the posterior border of the front coxal cavity is not closed, so that a large gap is seen, and in the latter case the branching piece approaches the epimeron (a piece of the prosternum) and forms the posterior border of the coxal cavity, thus tending to close it. As the front coxæ in the HALTICINÆ are not conically raised, the prosternal process is clearly visible between them, and by moving the fore legs forwards the condition of the cavity—whether it is closed or open behind—can be easily seen. Taking advantage of this feature, the genera of the HALTICINÆ have been conveniently divided into groups. Weise has tried to use the character of the closed or open condition of the front coxal cavities, together with the claw-characters, in grouping the genera of the GALERUCINÆ (Ent. Zeit. Wien, xl, 1923, p. 124); but the result is not successful, because the prosternal process in the Galerucinæ is very thin and the coxæ are conically raised, rendering it difficult to see the process between the coxæ. When they are moved forwards the posterior borders of the cavities are not easily seen, owing to the modification of the coxæ. Therefore what is a useful character in the Halticinæ is not equally serviceable in the classification of the Galerucinæ. Moreover, it has not been proved that the particular condition of the front coxal cavities is of such fundamental importance that it must be used as a "systematic" character and cannot be dispensed with. I therefore propose to abandon the coxal cavity character in dealing with the present subfamily. In this view I am supported by Monsieur Laboissière of France, who has paid considerable attention to the study of this group.

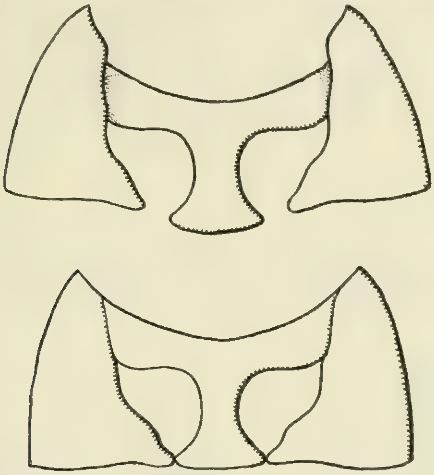

Fig. 14.—Diagrams showing the differences in the structure of the front coxal cavities.

The Hind Femur.

As has been stated above, the femur is the thickest part of the leg, and in the Halticinæ the thickness of the hind femur assumes enormous dimensions (*vide* Maulik, 1926). In the Galerucinæ, with few exceptions, the hind femora are not dilated, and as at first sight the dilated condition of the hind femur distinguishes the Halticinæ, the placing of such Galerucinæ as exhibit the condition is rendered difficult. In 1929 I published a note in Proc. Zool. Soc. Lond. pp. 305–8, on the structure of the hind femur in the Halticine beetles, and in this paper I described a structure inside the femur of the Halticine beetles, the presence or absence of which affords

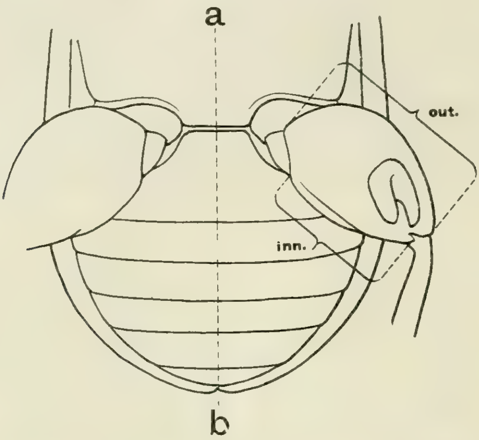

Fig. 15.—A schematic drawing of the underside of a Halticine beetle, showing the inflated femur, with endoskeletal organ *in situ*. *Out.*, outer edge of the femur ; *inn.*, inner edge of the femur.

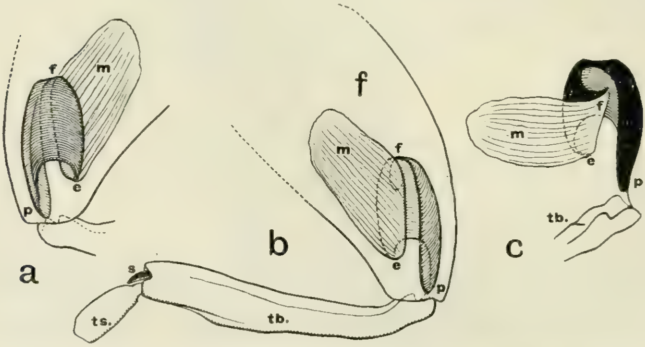

Fig. 16.—From dissections of femur of *Ophrida marmorea* Wiedm. **a,** showing the convex aspect of the organ ; **b**, showing the concave aspect of the organ ; **c**, showing the lateral aspect. *p*, lobe hinged to the tibia ; *e*, *f*, the edge of the organ to which the band of muscle is attached ; *m*, the band of muscle ; *tb.*, tibia ; *ts.*, tarsus ; *f*, dissected femur ; *s*, terminal spine.

a definite character by which the Halticinæ can be separated from the Galerucinæ. The usefulness of this discovery is shown by the fact that workers on these groups are increasingly using this criterion.

In order to ascertain if the internal structure in the femur is present or not it is necessary to dissect off one of the hind legs and to clear it in potash. The femoral organ appears in the cleared specimen as a strongly chitinized curved plate with a narrow end which is hinged to the tibia, the other end, along which is attached a band of muscle, being fairly broad. The convex surface is directed posteriorly and the concave anteriorly. In balsam mounts it appears to have two lobes at *p* and *e*, *p* being nearer the outer edge of the femur, while *e* is nearer the inner edge. This organ may be looked upon as a chitinized tendon which has acquired its present form by constant use in the act of jumping. Chrysomelid beetles possessing this organ should be placed in the HALTICINÆ no matter whether they can jump or not. If some cannot jump, in spite of the presence of the organ, it shows that they once possessed the power but have since lost it. Some Galerucine beetles have inflated hind femora, but in these cases this organ is absent.

The Abdominal Sternites.

In the GALERUCINÆ there are five visible abdominal sternites; these do not show any peculiar modification except the last segment, which, owing to exigencies of the copulatory structures, has been greatly modified in the male. A conspicuous example is described under *Aulacophora excavata* Baly. In the male the last visible segment in many cases shows a trilobed condition, a secondary sexual character by which this sex is easily identified at first sight. In other species one of the abdominal sternites bears processes. Although as a rule there are no obvious secondary sexual characters in the female, in some species a slight emargination occurs in the apex of the last visible abdominal sternite.

The underside does not generally show any ornamentation in colour, but sometimes spots and patches may occur on the abdominal sternites.

The Ædeagus.

It is well known that when an insect is cleared of its internal organs by boiling in potash one finds a continuous sac without any opening except the mouth, the anus and the spiracles. In the males it will be found that under the anus there extrudes a long piece in continuation of the body-wall. This is the copulatory apparatus, which in repose remains withdrawn into the abdomen. It consists of (1) the middle lobe (*ml*), (2) the first connecting membrane (cm^1), (3) the tegmen (*tg*), (4) the second connecting membrane (cm^2). To the middle lobe and the tegmen together the term ædeagus has been applied. In some of the more generalized forms two lateral lobes or parameres are present, but in this group these have fused with the middle lobe. On dissecting a male Galerucine beetle the middle lobe is seen as a strongly chitinized piece and the tegmen as a triangular structure. The ædeagus presents a variety of shapes, and is an interesting subject for comparative study. Its systematic value, so far as this group is concerned, is not very great, because there are other characters, more readily examined, which afford sufficient distinguishing features by which the species can be separated. In the groups where such characters are not available recourse has to be made to the ædeagus as a differentiating character.

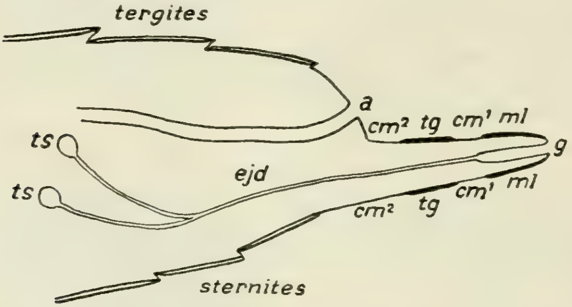

Fig. 17.—A schematic drawing, showing the parts of ædeagus of a beetle. *a*, end of the alimentary canal ; *ts*, testes ; *ejd*, ejaculatory duct ; *cm*², second connecting membrane ; *tg*, tegmen ; *cm*¹, first connecting membrane ; *ml*, middle lobe ; *g*, gonopore. (Adapted from David Sharp's terminology.)

Those who are interested in the subject should refer to the following publications :—

(1) "The Comparative Anatomy of the Male Genital Tube in Coleoptera," by D. Sharp and F. Muir. Trans. Ent. Soc. Lond. 1912, pt. iii, pp. 477–642, 37 pls.

(2) "The Structure and Development of Reproductive System in Coleoptera, with Notes on its Homologies," by Margot E. Metcalfe. Quart. Journ. Micr. Sci. 1932, vol. lxxv, pt. 1, pp. 50.

Special reference may be made to J. Weise's figures, published in Deut. Ent. Zeitschr. xxxiv, 1890, p. 288, pl. ii (iii), figs. 8–15. Here he has given, without comment, small outline drawings of the ædeagi of the following European species of GALERUCINÆ :—*Pyrrhalta viburni*, *Galerucella nymphææ*, *G. sagittariæ*, *G. lineola*, *G. xanthomelæna* (=*G. luteola*), *G. calmariensis*, *G. pusilla* and *G. tenella*. In my opinion these figures do not show sufficient characters to be of much use in a comparative study of the structures; but the general shape and the form of the apex can be seen.

Since Sharp and Muir's enquiry into the anatomy of this structure a fashion has come into vogue of relying implicitly on the structure of the ædeagus as a differentiating character. Although it has value in certain cases, where other characters fail, it has no general value greater than any other character used in "Systematics," and this value differs widely in different groups; but the impetus of a fashion seems to be no less powerful in science than in other human activities.

Definition of a Galerucine Beetle.

(1) Terrestrial Coleoptera; (2) phytophagous; (3) all tarsi with four segments, at least the penultimate bilobed and the last or the claw-segment arising from the base of the previous segment; (4) body oblong; (5) mouth-parts without a snout and not ventrally situated; (6) antenna not modified in the manner to which the term "elbowed" is applied; (7) the roots of antennæ situated close together in front between the eyes; (8) the posterior femur, when thickened, without the jumping organ.

Definition in Nature.

I believe that the above definition will cover all cases which are at present included in the GALERUCINÆ; but it must be remembered that no phenomenon is rigidly defined in nature. At some point in the process of evolution a phenomenon shows certain characteristics very strongly, and as we deviate from that point in any direction these begin to merge with other characteristics, losing their original nature. This process continues till the second set of characteristics becomes prominent. Hence it is to be expected that some genera will show in lesser degree the Galerucine characters enumerated above. And, further, by the discovery of more material or facts our conception, and consequently the definition, of the GALERUCINÆ are liable to be changed.

BIONOMICS.

Notes on the earlier Stages, Life-histories, Habits and Food-plants.

In conformity with the method followed by me in this series information other than systematic relationship is given, especially in the summaries at the end of this section. Certain aspects of the early stages, etc., are features which are common to Galerucine beetles from all parts of the world.

These are important, because many species of this subfamily are pests of cultivated plants, and points in known life-histories will facilitate the study of other pests whose life-histories are not yet worked out. The lists of food-plants indicate to some extent their food habits. Oriental species in this section are treated more fully, while a bare outline of facts is given for species from other parts of the world. If the list is not quite complete sufficient is stated to indicate what is to be expected in the life-histories and early stages of Galerucine beetles.

India.

Oides bipunctata Fabricius.

Food-plant: leaves of the common wild creeper, *Vitis trifolia.*

Locality: Pusa, 7. viii. 1908.

Larva: length, 10 mm.; breadth, 5 mm. These are the measurements of the dried larva after removal from the alcohol in which it had been preserved.

The colour of the larva in alcohol is dark brown, of the fresh larva yellow. The elongate body is composed of thirteen segments, *i. e.*, the head, three thoracic and nine abdominal. The head is well developed. Seen from above it is sloping in front, and the median suture, bifurcating in front, is present. On each side, not far from the oral orifice, is a small antenna, situated on a large membranous surface. In the preparation before me its segmentation, if any, cannot be made out. There are four or five hairs surrounding the antennal base. Excepting these the whole of the cranial surface is smooth and shining. On the outer side of the antennal base is a single ocellus. The labrum is broader than long, with the sides rounded and the anterior margin sharply emarginate in the middle; it is not large enough to cover the mandibles completely. Beneath the labrum on each side is a large strongly chitinized mandible, which is curved in such a way that the convex side is outside and dorso-lateral, while the concave side forms the interior surface, the cutting-edge of which has about five or six small sharp teeth. Seen from the underside the lower mouth-parts consist of the following:—on each side is a maxilla with a three-segmented palpus, and the labium with a pair of palpi, each palpus being two-segmented. The mouth-parts are greatly simplified, and for the purposes of this work it is not necessary to enter into further details or homologies. The prothorax is broader than long, with a large fleshy structure on the dorsal side; this has a median longitudinal suture, the sides roundly moulded, and four roundly moulded lobes situated in a transverse line on the front margin, two on each side of the median suture. Under the dorsal structure on each side is a fleshy conical protuberance with rounded apex. The meso- and metathorax are similar in structure, each being broader than long. The dorsal surface of each has eight nodular elevated fleshy structures, arranged as follows :—Four along a transverse line in front and another set of four along a transverse line behind ; of the four nodules in each row two lie on each side of the median longitudinal line. On the mesothorax the four nodules of the front row are more sharply raised and more isolated from each other than those of the posterior row. On the metathorax the nodules of the posterior row may be considered to have fused into a transverse fold. On both meso- and metathorax on each side is a dorsal, broadly rounded fleshy lobe, and ventral to it is a conical fleshy protuberance with rounded apex. In all cases the ventral conical structures project beyond the dorsal lobes. Each of the abdominal segments except the last has structures similar to what are found on the thoracic segments, but modified as follows :—The dorsal nodules across each segment are replaced by continuous transverse folds ; the dorsal fleshy lobes on each side are not so rounded as those of the thoracic segments ; the ventro-lateral conical structures are smaller and apically truncate. The last segment is narrower than the last but one and has the edges all round broadly rounded ; on the dorsal edge there are four hairs at some distance from one another but almost equally spaced ; on the ventral surface the anus is protected by flaps of the integument. On the ventral surface of the body there are groups of erect hairs arranged as follows :—Between the prothoracic legs there are four hairs distributed in such a way that each forms the angle of a square ; between the first and second pair of legs three ; between the mesothoracic legs two ; between the second and third pairs three ; between the metathoracic legs two ; on each abdominal segment, two groups on a transverse line in front and two groups on a transverse line behind ; the two anterior groups lie close to each other on each side of the median longitudinal line, and each group consists of two hairs ; the two posterior groups are comparatively further away from each other and consist of four hairs (also situated in a transverse line).

The three pairs of legs are well developed, each being composed of coxa, femur and tibia, which is surmounted by a sharp claw, and under each claw there is a membranous pad. There are a few scattered erect hairs on the basal and apical parts of the leg.

On each side in the folds between the pro- and mesothorax is a spiracle opening laterally ; these two spiracles constitute the first or thoracic pair. On each side of the first eight abdominal segments between the dorsal and ventral fleshy structures is a spiracle opening dorso-laterally. There are therefore altogether nine pairs of spiracles, all being fully functional.

The larva occurs plentifully in forest localities, but occasionally in the plains. It pupates on the leaf under a few coarse threads. Fletcher (1915–16) says that it has been observed to hibernate and æstivate in the egg stage.

Oides affinis Jacoby.

Fletcher (1914, p. 313) records that this species feeds on paddy (rice-plant) in Shoranore, Malabar, in July and August. Jepson (1924) records this species as a pest of rice in Ceylon.

Oides flava Olivier.

Captured on paddy in the Rungpur district, Bengal. This information is given on the label.

Aulacophora foveicollis Lucas.

Record: Husain & Shah, 1926.

Food-plants: on many species of the natural order Cucurbitaceæ.

Newly hatched larva: length, 1·2 mm.; breadth, 0·28 mm.

Full-fed larva: length, 12 mm.; breadth, 1·6 mm.

Pupa: length, 6·5–7·5 mm.; breadth, about 3·5 mm.

Imago: length, 6–7 mm.; breadth, 3–3·75 mm.

Range.—It has a very wide distribution, occurring in South Europe, Algeria, Cyprus, Sudan, Aden, Mesopotamia, Persia, India, Ceylon, Burma and the Andaman Islands.

The chief characteristic of the larva is that its body is long, narrow and cylindrical, with a relatively small head and a strongly chitinized shield on the upper side of the ninth abdominal segment. There are thirteen segments, including the head, three thoracic and nine abdominal segments; if the anal "sucker" is considered a segment then there are fourteen segments. When seen from the dorsal side the larva shows the segmentation clearly though not sharply defined. In each segment is seen a lateral rounded swelling on each side and raised areas on both the dorsal and ventral surfaces, the raised areas being arranged in a regular pattern and provided with erect hairs. In the larvæ of many species of CHRYSOMELIDÆ in which raised areas occur these are well chitinized, contrasting strongly with the rest of the surface. Such is not the case in the present species, in which the integument is soft; the raised areas, though distinct, are not strongly differentiated. The colour of a newly hatched larva is creamy yellow, with the head brownish, the prothorax brownish dorsally and light yellow laterally and ventrally (including the legs), and the anal shield dark. The full-fed larva is creamy white, with the head pale brown and the anal shield slightly darker. The coloration of the full-fed larva is fairly maintained in the specimens preserved in alcohol. The head is well developed, with each hemicranium convex above, with a median longitudinal suture, with the portion in contact with the prothorax divided into two lobes and with the upper side slightly sloping in front. As this larva has the habit of boring into the roots and stems the bilobed character of the posterior portion imbedded in the prothorax is in accordance with what is found in leaf-mining larvæ (see my remarks "On the Structure of Larvæ of Hispine Beetles," Proc. Zool. Soc. Lond. 1931, p. 1161, and also 1932, p. 321, summary and illustrations). In this larva there is in the head no lateral oblique suture arising on each side from the median suture. The labrum is broader than long, with a very slight emargination in the middle of the anterior margin, and does not cover the mandibles completely. On each side in front near the base of the mandible is a three-segmented antenna, with the basal segment large and rounded, and having a few isolated hairs round the base. Apparently there are no ocelli. The mandible is narrow, with three sharp teeth at the apex. Maxilla with a three-segmented palpus. Labial palpus two-segmented but much reduced. On the whole the mouth-parts are much simplified, and in a suitable preparation, especially in the floating condition, the sclerites are easily observed. On the mentum there are a few scattered erect hairs. The prothorax has a dorsal shield, with its sides rounded; a median longitudinal suture is present, and the upper surface is finely shagreened, with a few scattered hairs. On the dorsal surface of the mesothorax, occupying the middle portion, there are two large transversely placed raised areas, and on each side of each of these is a smaller raised area, thus making a group of six in all, two median and four lateral. The surface of all raised areas is shagreened and provided with one or two scattered hairs. Opening laterally on each side between the pro- and mesothorax, but more towards the latter, is the thoracic spiracle. On the dorsal surface of the metathorax there is a group of six areas arranged in a manner similar to those on the mesothorax. On each abdominal segment the raised areas are arranged in three transverse lines; the arrangement may be conceived to have arisen by the division of large transverse raised areas, the front one into five, the median into two and the posterior into five.

in the anterior and posterior lines there being one large area in the middle with two smaller on each side, and in the middle two equal areas. The effect of this arrangement is that on the dorso-lateral surface of each side several small raised areas occur. Under one of these, opposite the middle transverse line, a spiracle opens dorso-laterally. The number of these raised areas is not absolutely constant, although it is generally so. On the anterior segments the subdivisions of the raised areas are fairly distinct, but as the posterior abdominal segments are approached they merge into transverse folds. Seen laterally two parallel rows of areas run along each side, including the thoracic segments, in which, owing to the legs, the areas are broken up. Those of the upper or dorsal row appear as lateral swellings when the larva is seen dorsally. On the underside of each abdominal segment, except the last bearing the anal sucker, is a group of three raised areas (one in front, the other two behind) placed on a large boss, which is followed by a depression and then a less raised transverse area. On each side of this arrangement is the raised area which forms a member of the lower lateral series. On the underside of the thoracic segments, owing to the position of the three pairs of legs, this arrangement is interrupted. In the prepared specimens before me the hairs on the raised areas of the underside are longer and more prominent than those of the upper side.

The legs are well developed, each being composed of coxa, femur and tibia ; the latter is surmounted by a sharp claw under which there is a pad. There are a few scattered hairs on each segment of the leg.

There are nine pairs of small annular spiracles, but even in stained specimens these are distinguishable with difficulty.

The ninth abdominal segment is so formed that its upper portion is a strongly chitinized structure, which is broad at the base, narrowing slightly towards the apex. The latter has a certain breadth and, together with the sides, is roundly moulded. There are four prominent apical hairs which are situated on the underside of the rounded edge. The upper surface of the chitinized portion is irregularly honeycombed with small pits ; one of these under a high magnification appears to be a transparent area. The underside of this segment is membranous and tends to be conical, so that the anal "sucker" can form its apex. In the preparation before me the line of demarcation between the ninth segment and the anal "sucker" is distinct. This latter is used in locomotion, and in accordance with this fact the underside of the chitinous shield at the base is collapsible, allowing for the contraction and extension of the "sucker."

The following notes on the life-history of this species are taken from the observations recorded by Mohammad Afzal Husain and Syed Abdullah Shah in the Punjab.

(1) The eggs are small, round and yellow. They are laid, either singly or in batches, on moist soil round the base of the food-plant. The egg stage lasts from six to fifteen days.

(2) The larvæ on hatching out are active, and bore into roots, stems and fruits, and also feed on leaves lying on the soil.

(3) There are four instars, the larval stage lasting from thirteen to twenty-three days. The larva enters the soil to moult and also to pupate.

(4) The larva, before pupating, excavates an oval earthen chamber in which it undergoes transformation. The cocoon is smooth and apparently is lined with some waterproof secreted substance. The pupal stage lasts from seven to seventeen days.

(5) From the egg to the imago the life-cycle occupies a period varying from thirty-two to fifty-five days.

(6) There are five generations, from the end of April to the end of September or even middle of October. As the imago lives long the generations overlap.

(7) The adults live for over a month, during which they feed and lay eggs. Hibernation lasts for more than five or six months—that is, from October till the following March.

(8) One cubic foot of soil round the roots of the attacked plants was found to contain on an average fifty larvæ in various stages of development.

(9) Inducement to make the larvæ accept plants other than Cucurbits as food failed, so that it cannot be said with certainty whether the larvæ have any other host-plants.

Aulacophora excavata Baly.

Also a pest in India, feeding on all Cucurbitaceous plants, particularly species of *Cucurbita*, *Cucumis*, *Citrullus*. In the Punjab it is known to feed only on *Luffa ægyptiaca* and *L. acutangula*.

Aulacophora stevensi Baly.

Its food-plants are snake-gourd, bitter-gourd, bottle-gourd. It is destructive to the flowers of the gourds.

Galerucella placida Baly.

In his 'Indian Insect Life,' 1909, p. 362, under the species *G. rugosa*, Lefroy remarks that the larva feeds on *Polygonum*, and he figures in colour (pl. xxii) all stages of this species. The young larva is broader across the thorax, narrowing towards the hinder end of the body. The head is large. In the full-grown larva the body is ovate, being broadest in the middle, slightly narrowing towards both anterior and posterior ends. The surface of the body contains a series of median and dorso-lateral dark patches bearing hairs.

Galerucella birmanica Jacoby.

This species is destructive to the leaves of Singhara (waternut), *Trapa bispinosa*. Mohammad Afzal Husain and Syed Abdullah Shah, in their work on *Aulacophora foveicollis* Lucas, refer to this species (p. 45) as *Galerucella singhara* Lefroy. Lefroy did not publish any description of such a species of *Galerucella*; and, further, the Singhara beetle has no resemblance to *A. foveicollis*.

For the material from which the following notes have been made I am indebted to Mr. Mahmood Hasan Khatib, of the College of Science, Nagpur. The material consists of two larvæ (one second-stage and another third-stage) from Nagpur and one third-stage larva from Aligarh, both lots being accompanied by the imagos. I am therefore able to state with certainty that they belong to *G. birmanica*, although the larvæ show some differences in the different instars. It should be recorded here that a difference exists between the third-stage larva from Nagpur and the third-stage larva from Aligarh, both now in the collection of the British Museum.

Second-stage larva from Nagpur: *length*, 6 mm.; *breadth*, 1·5 mm.; third-stage larva: *length*, 7·5 mm.; *breadth*, 2·25 mm. Third-stage larva from Aligarh: *length*, 7 mm.; *breadth*, 2·75 mm. Imago: *length*, 5 mm.; *breadth*, 2·5 mm.

The upper side of the larva is rich brown generally and the underside lighter, with the more strongly chitinized parts, including the legs, blackish. The body is composed of head, three thoracic and nine abdominal segments; the anal "sucker," situated ventrally, may be considered as the tenth segment of the abdomen. The head is fully developed, strongly chitinized, somewhat retractile and dark brown, the surrounding area being lighter, like the general colour of the underside. The cranium has a longitudinal median suture, bifurcating in front into two oblique sutures, each of which, widening near the base of the mandible, encloses an antenna. Behind the suture and not far from the antenna is a single ocellus on each side. The front, from the point where the median line bifurcates to the base of the mouthparts, is deeply depressed, the median line being black on the depressed part and the surface transversely strigose and bearing strongly impressed spots and a few hairs. The labrum is broader than long, hexagonal, with the front margin almost straight, and posteriorly two sides meeting at an angle in the middle. Each mandible has three teeth. The maxilla is well developed, the associated palpus being three-segmented. The labium is well developed and its palpus two-segmented. Seen from the upper side each segment of the body from the prothorax to the eighth abdominal segment possesses lateral rounded protuberances. Each thoracic protuberance is broader and is provided with two lobes, a character which is more clearly defined in the meso- and metathorax. In the case of an abdominal segment each lateral protuberance is single-lobed. Each lobe is rounded at its apex and is provided with one or two fine hairs. The prothoracic dorsal plate is somewhat depressed on each side of the median longitudinal line, which is continued on the meso- and metathorax. At a level lower than the dorsal plate lies the lateral rounded process. The mesothorax has two transverse plates with a dividing line between them ; each of these is divided in the middle by the longitudinal line ; of these four plates each is again divided into two, so that there are in all eight sclerites, four in the anterior transverse line and four behind. Lateral to this group is a large sclerite occupying the whole length of the segment ; this is undivided in the thoracic segments but divided in the abdominal segments, and on the anterior division in the latter is a spiracle. The lateral rounded protuberances, as seen from above, are situated below the last-mentioned sclerites. The protuberances are divided in the thoracic segments and undivided in those of the abdomen. On each abdominal segment the median longitudinal line is lacking, and the anterior transverse sclerite is divided into three parts, the posterior being undivided. The ninth abdominal segment is much narrower than the others, broader than long, and has the apical margin rounded, with about six hairs on each side, and the upper surface finely rugose.

On the underside there is a median series of sclerites or patches, which are divided on the abdominal segments but undivided on the thoracic. Along the longitudinal line on which the legs are situated is a second series of patches extending to the eighth segment. Between the median and ventro-lateral series there is a third series, so that there are in all five longitudinal series of sclerites or patches on the under surface. All sclerites possess little points which bear fine hairs. On the eighth segment the patches tend to be nearer to each other, on the ninth they fuse to form a transverse band. The tenth or anal segment has three rounded lobes with a slight chitinization on its anterior border.

In the second-stage larva all the sclerites of the various series both on the upper and lower surfaces are better defined, with the hairs clearly shown, but the general scheme is similar.

In the Aligarh specimen of the third-stage larva the general scheme of arrangement of the sclerites seems to have almost disappeared. In the Nagpur specimen of the second-stage the scheme can be made out, although on the underside the patches are obsolescent. Its dark colour is probably due to the fixative. The Nagpur specimen was treated in some fixative and the Aligarh specimen put in alcohol without any previous fixing. The difference between larvæ of the same stage from the two different localities cannot altogether be put down to the method of initial treatment of the larvæ.

Periclitena vigorsi Hope.

Food-plant: on tender leaves of *Cordia myxa* (Boraginaceæ).

Larva: length, 15–16 mm.; breadth, 4–5 mm.

Imago: length, 8·5–13 mm.; breadth, 5–7 mm.

Locality: Pusa, 7. vii. 1920.

Described from two examples sent to me by Mr. T. Bainbrigge Fletcher. The data regarding the food-plant and date are taken from the label of the Pusa laboratory. The larvæ were not accompanied by the imago.

The body of the larva is composed of thirteen segments, including the head, three thoracic and nine abdominal. Compared with the size of the body the head is small but well developed. The epicranial suture bifurcates near the base of the head. On each convex hemicranium there are a few scattered hairs. Near the base of the mandible on each side of the head is an antenna, and posterior to it is a single ocellus. The labrum is broader than long, emarginate in the middle of the front margin, convex above and not large enough to cover the mandibles completely. Each mandible has four teeth along the biting-edge. The maxillary palpus has four segments and the labial three. Each of these palpi has the basal segment large and rounded, but becomes progressively narrower towards the apex, so that the palpus is conical in appearance. The prothorax is broader than long, with a dorsal shield-like structure, the surface of the shield being uneven. There is a median longitudinal suture. Across the anterior margin there is a raised area followed by a large shallow depression which contains raised areas. On each side below the dorsal shield is a conical raised structure. The mesothorax is slightly broader than the

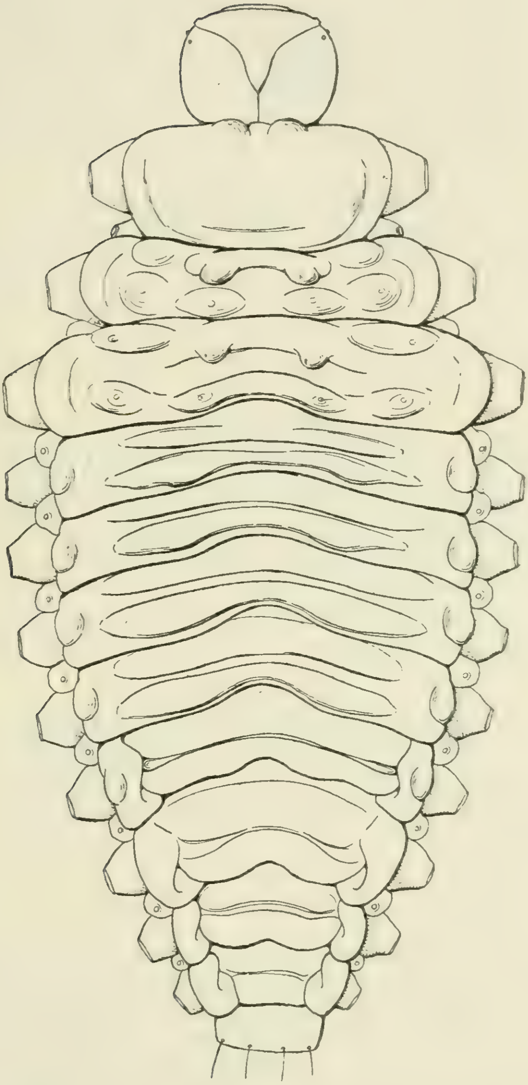

Fig. 18.—Larva of *Oides bipunctata* Fab., dorsal aspect.

prothorax; on the dorsal surface there are raised structures disposed as follows:—On a transverse line in front four, on a posterior line four; in each group of four two are median and two dorso-lateral, the medians being placed close to each other and the anterior medians being larger than those of the posterior line; the dorso-laterals are always smaller than the medians; on each side there are conical structures, one, placed anteriorly, bearing the thoracic spiracle, while two others are placed posteriorly, one above the other, the lower one being more conical than the upper, which has the apex more rounded. The metathorax is similar in structure, having all the conically raised dorsal and dorso-lateral structures situated in corresponding positions as indicated above, except that the antero-lateral raised area does not contain a spiracle. On the dorsal side of each abdominal segment a similar arrangement of the conical structures prevails, except that (1) the upper lateral is broken up into two, making room for a spiracle, (2) the lower lateral is developed into a strongly conical process, (3) the anterior medians are smaller and placed on a large transverse ovate plate, (4) the posterior medians are similarly placed but are smaller, (5) the dorso-laterals are situated singly and are always small. The plate of the ninth segment is a strongly chitinized, solid-looking rectangular structure, with the apical edge almost straight and the lateral angles rounded; the upper surface is slightly concave and uneven and has the anal sucker on the underside. This latter is a round fleshy structure with the rim

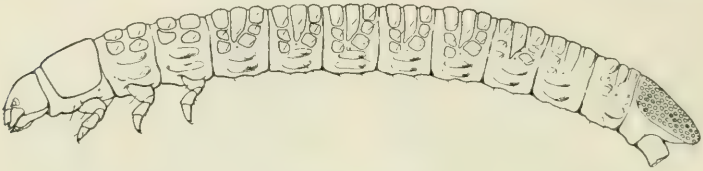

Fig. 19.—Larva of *Aulacophora foveicollis* Lucas, lateral aspect.

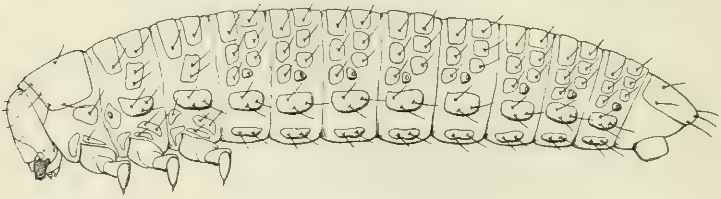

Fig. 20.—Larva of *Galerucella birmanica* Jac., lateral aspect.

divided into many longitudinal folds. The anal sucker is probably used in locomotion. The structures on the underside of the larva are as follows :—The surface contains little points bearing erect hairs. These points are arranged according to a definite method along the longitudinal middle and ventrolateral lines, and are more accentuated on the apical segments than on the basal or thoracic segments. On each abdominal segment on each side along the line on which the thoracic legs are situated, and below the conical projections of the upper side, is a fairly large, raised surface having two closely-placed hair-bearing points. The scheme of the other hair-bearing points is as follows :—Along an anterior transverse line near the middle line are two points separated from each other ; along a posterior transverse line two groups situated more laterally, each group containing two points. This scheme continues with fair regularity, but extra points may occur ; on the other hand, there may be reduction, as, for example, happens in the thoracic segments, where only the median points are present.

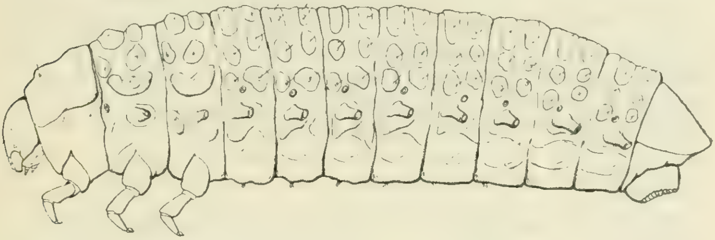

Fig. 21.—Larva of *Periclitena vigorsi* Hope, lateral aspect.

A thoracic segment bears a pair of well-developed legs, each being composed of a coxa, femur and a tibia surmounted by a strong claw under which is a pad.

There are nine pairs of spiracles, the thoracic spiracles opening laterally and the abdominal opening dorsally.

In the specimens before me the segmentation of the body is well marked, so that there is little difficulty in determining the boundaries of the individual segments. The raised structures on the upper side have strongly chitinized surfaces, which are thus well defined and clearly differentiated from the surrounding membranous surface.

Mimastra cyanura Hope.

Lefroy, 1909, p. 362, records that it is principally a defoliator of forest trees. It also occurs in China. The beetle emits an acrid yellow fluid from the head.

China.

Oides decempunctata Bilberg.

Record: Hoffmann, 1932, p. 565.
Food-plant : cultivated grapes (*Vitis lambrusca* Linn.).
Locality : in the vicinity of Canton.
Larva : length, 18 mm. ; breadth, 6 mm.
Pupa : length, 11 mm. ; breadth, 6 mm.
Imago : length, 10–11 mm. ; breadth, 8 mm.

Freshly deposited eggs are yellowish in colour. Young larvæ have been found early in April and mature larvæ at the end of April and also at the end of July. Larvæ entering the soil on April 29th emerged as imagos on May 15th. Larvæ pupate underground, making a comparatively large chamber in which they undergo the transformation. The pupa is cream-colour. The mature beetle remains in the chamber for some time before emergence.

Hoffmann has figured the larva and pupa ; comparing these figures with the larva of *O. bipunctata* it is apparent that there is a close resemblance in general structure, but the larvæ of *decempunctata* differ from those of *bipunctata* in having several series of black spots and patches which are not found in the Indian species.

Platyxantha chinensis Maulik.

Record : Ann. Mag. Nat. Hist. ser. 10, xii, 1933, p. 563.
Food-plant : mulberry.
Imago : length, 5·75 mm. ; breadth, a little more than 2 mm.

Prof. P. H. Tsai writes to me that this species is a serious pest in Kiangsu and Chekiang. The beetle is active in April, and attacks the leaves of the mulberry-trees, while the larva lives underground and attacks the roots. The eggs are yellowish and are laid in the soil.

Japan.

Aulacophora femoralis Motschulsky.

Record : Tanabe and Mishima, 1930.

This species is very injurious to water-melon in Japan, the adults feeding on the leaves of Cucurbits and the larvæ attacking the roots. There is one generation a year. The female may lay about twelve batches of eggs in cracks in the ground or under the soil from the end of May until the end of June and sometimes later. The larvæ hatch in about two weeks, the larval and pupal stages lasting about thirty-three and fourteen days respectively. The beetles hibernate from the end of October, emerging in the following March. They have been occasionally observed on warm days during winter.

Luperodes præustus Motschulsky.

According to Matsuji Hori (1932) the life-history of this species in Southern Saghalin is as follows :—

(1) Eggs are laid singly in the soil at the base of the food-plants, clover and mugwort. A female can lay fifty eggs, egg-laying covering a period of ten days to two weeks.
(2) Eggs begin to hatch early in June, the hatching covering a period of four to five weeks.
(3) The larval stage lasts from twenty-four to forty-four days, there being two moults.
(4) The larva goes underground and builds a chamber in the earth, in which the transformation takes place.
(5) The pupal stage lasts from five to twenty-two days, but the beetle does not emerge till the middle of July.
(6) The female beetle lives thirty-one days, while the male lives only twenty-three days.
(7) This species has a large number of host-plants, including forty-eight species belonging to seventeen families, namely :—SALICACEÆ, BETULACEÆ, POLYGONACEÆ, BALSAMINACEÆ, CHENOPODIACEÆ, CARYOPHYLLACEÆ, BRASSICACEÆ, ROSACEÆ, FABACEÆ, APIACEÆ, HYDROPHYLLACEÆ, LAMIACEÆ, SOLANACEÆ, PLANTAGINACEÆ, CUCURBITACEÆ, ASTERACEÆ, and LILIACEÆ.

It shows preference, but will accept some species of plants belonging to these groups as food.

The larvæ have been figured, and it appears that the body is elongate, composed of thirteen segments, with the head small, the prothorax with a dorsal shield, the meso- and metathorax exhibiting spots and patches bearing erect hairs arranged in a manner similar to that described under *Aulacophora foveicollis* Lucas.

In *L. præustus* Motsch. there is no anal plate nor is there a prominent anal sucker. The spots and patches on the upper side are more numerous than on the underside.

Australia.

Aulacophora olivieri Baly.

Food-plants : melons, cucumbers, pumpkins, squashes and cherries.

Froggatt (1909, p. 209, and 1910, p. 406) has recorded the following observations on this species (authorship ascribed by him to Guérin) :—

The eggs are irregularly oval in form, and in captivity they are deposited on the soil or on the remains of food, to which they are attached by a yellow secretion, so that they look as if they are stalked. The surface of the egg has a granulated appearance. In a female as many as sixty or seventy eggs have been observed. After about a week the eggs hatch, the larvæ being somewhat cylindrical in form and dull yellow in colour. There are three pairs of well-formed legs and an anal " sucker." A few long hairs and numerous fine hairs are scattered over the head and the posterior part of the body. The larvæ attack the roots, and all stages could be found in the surrounding soil, in which they form a chamber for pupation. From the middle of December to the middle of February the larvæ could be found in the soil. The imagos are prevalent in October and November, and they skeletonize the leaves. The flowers are also attacked.

Aulacophora hilaris Boisduval.

Fuller (1896, p. 88) has recorded that this species attacks pumpkins, marrows and other Cucurbitaceous plants, but it will also eat potato-tops. It eats the soft fleshy parts and, when the leaves become hard, it attacks the flowers.

Africa.

Oides collaris Baly.

Aulmann (1911, p. 264) records this species as attacking the flowers of Kautschuk, *Manihot glaziovii*, in West Africa.

Prosmidia magna Weise.

Aulmann (1911, p. 442) records, under the name *Idacantha magna* Ws., that this species is destructive to green berries of coffee in West Africa.

Exora gracilicornis Weise.

Aulmann (1911, p. 265) records this species, under the name *Malacosoma gracilicorne* Ws., as being numerous on *Crotalaria grandibracteata* in Amani (West Africa) in October, 1910.

Madagascar.

Galerucella pruinosa Fairmaire.

Record : Xambeau, 1905, p. 161.
Larva : length, 10 mm. ; breadth, 3 mm.
Xambeau's description of the larva, though fairly full, does not contain any comparative study with other larvæ of this group.

Europe.

Galerucella calmariensis Linnæus.

Records: Cornelius, 1867, p. 213; Schulze, 1919, p. 394; Paterson, 1931, p. 903.

Food-plant: *Lythrum*.

Larva: length, 5·5–6·2 mm.; breadth, 1·25–1·5 mm.

Pupa: length, 3·2–4·2 mm.; breadth, 1·1–1·5 mm.

Imago: length, 5 mm.; breadth, 2·25 mm.

The larva is of the type which has an arrangement of setiferous raised areas.

In the pupa a pair of dorsal spines is usually present on the ninth abdominal segment, and there are seven pairs of spiracles.

An interesting fact recorded by Schulze is that the sexes can be distinguished in the larval stage by the colour, namely, the males are bright orange-yellow, while the females are much paler. Those who are interested in the question of the colour of blood of insects may be referred to the following publications:—

(1) K. Geyer, "Untersuchungen über die chemische Zusammensetzung der Insektenhæmolymphe und ihrer Bedeutung für die geschlechtliche Differenzierung." Zeitschr. f. Wissensch. Zoologie, cv, 1913.

(2) A. Ch. Hollande, "Étude physico-chimique du sang de quelques insects. Toxicité de ce sang." Thèse Univ. Lyon Pharm. Grenoble, 1906; also in Ann. Univ. Gren. xix, 1907.

(3) A. Ch. Hollande, "Étude histologique comparée du sang des insectes à hémorhée et des insectes sans hémorrhée." Archiv. Zool. expér. et générale, 5 sér., vi, 1911, pp. 283–323, with two plates and text-figures.

In this last work a species of a Galerucine beetle, *Agelastica alni*, has been used for study.

Galerucella lineola Fab.

Records: Rosenhaur, 1882, p. 164; Weise, 1886, p. 620; Böving, 1929, p. 18.

Food-plants: *Rumex, Salix, Alnus.*

The larva very closely resembles that of *G. nymphææ*. It pupates above ground, attached to a leaf. The imagos skeletonize the leaves.

This species also occurs in Algiers.

Galerucella luteola Müller.

Records: Heeger, 1858, p. 162; Leinweber, 1858, p. 29; Harris, 1862, p. 124; Weise, 1886, p. 619; Garman, 1899,

p. 65 ; Hacker, 1899, p. 37 ; Ménégaux, 1901, p. 551 ; Britton, 1907, p. 1 ; Marlett, 1908, p. 1 ; Poyarkoff, 1910, p. 333 ; Silvestri, 1910, pp. 249, 252, 262 ; Herrick, 1913, p. 491 ; Lecaillon, 1914, p. 116 ; Woods, 1924, p. 136 ; Böving, 1929, p. 19 ; Böving & Craighead, 1931, pl. 110, fig. F.

Food-plants : several species of *Ulmus* (Elm).

Larva : length, 9–12 mm. ; breadth, 2·5 mm.

Pupa : length, 5 mm. ; breadth, 2·4 mm.

Imago : length, 6·5 mm. ; breadth, 3 mm.

The eggs are ovoid, attached to the leaf at one end, yellowish, and have the surface pitted, the pits being hexagonal. The colour of the newly hatched larva is greenish-hazel (brownish-red), the head, pronotum, and the setiferous areas being darker or blackish. The colour of the softer integument appears to change, becoming yellowish, greenish or violaceous as the larva grows, though the colour of the harder parts remains blackish. The larva is of the type in which there is an arrangement of setiferous raised areas. In this species the setæ are very long. There are three moults. The pupa is about twice as long as broad, the colour when fresh being yellow, with hairs brownish-yellow. The transformation into the pupal stage takes place in cracks or crevices at the base of the trunk of the tree or in the soil. No chamber or cocoon is formed. According to climatic and other conditions the species may have one or two generations per year. The beetles hibernate as imagos and emerge from hibernation at the beginning of April. When there are more than one generation they overlap, because oviposition continues over a period of time. The egg-stage occupies about ten days. The larva moults on the leaves by attaching itself to the surface by the hind end of the body, and as the larva emerges the cast skin remains stuck to the leaf. According to the weather the first stage occupies a period of five to nine days and the second stage four to six days. After this, in about six or seven days, the larva is completely developed and is ready to descend down the trunk to pupate, undergoing another moult before pupation. It takes about four days for the pupa to form in the larval skin.

Both the larva and imago skeletonize the leaves. The imago, when disturbed, drops from where it has been feeding and remains motionless. This phenomenon is called " feigning death " : but it is not a suitable expression because of its implications.

This species also occurs in North Africa, Asia Minor, the Caucasus and Siberia. It was introduced into North America about the year 1839.

Galerucella nymphææ Linnæus.

Records : Degeer, 1775, p. 405 ; Westwood, 1839, p. 382 ; Gadeau, 1886, p. 427 ; Weise, 1886, p. 619 ; Quilter, 1887, p. 178 ; MacGillivray, 1903, p. 325 ; Chittenden, 1905, p. 59 ; Kryger, 1919, p. 38 ; Weiss & West, 1920, p. 237 ; Woods, 1924, p. 134 ; Henriksen, 1927, p. 348 ; Böving, 1929, p. 16 ; Paterson, 1931, p. 901.

Food-plants : aquatic plants—*Nymphæa, Sagittaria, Brasenia* and *Nuphar* ; many species of *Polygonum* ; also found on *Mentha*.

Larva : length, 5·25–6 mm. ; breadth, 1·5–1·8 mm.

Pupa : length, 5–7 mm. ; breadth, 2·6–4 mm.

Imago : length, 5 mm. ; breadth, 3 mm.

The larva is of the type which has an arrangement of setiferous raised areas. Head smooth, shining black, sometimes with anterior margin reddish-brown ; labrum creamy white with dark posterior corners ; median epicranial and frontal sutures like white lines ; body with membranous parts greenish-grey ; prothoracic shield, dorsal sclerites and terminal shield shining, dark brown ; thoracic segments with a median longitudinal whitish suture ; dorsal sclerites coarsely corrugated and covering almost the entire upper surface of body, skin between the sclerites appearing only as light lines. Terminal shield with a honeycomb structure, irregularly and coarsely corrugated. Underside of body light greenish-grey, with sclerites small and light brown. Outer side of legs blackish-brown ; inner side lighter brown. Setæ short, thin and pointed ; most sclerites with a few minute spinules.

According to Gadeau there is a pair of abdominal spines on the pupa.

After hibernation the beetles appear in May. The eggs are laid in clusters on the surface of leaves, and are yellow and shining, with a surface-sculpturing of hexagonal markings having depressed centres. The eggs are stuck on end on the leaves. They hatch in about a week, the larva emerging from the free end of the egg.

This species also occurs in Siberia.

Galerucella sagittariæ Gyllenhal.

Records : Schaupp, 1883, p. 54 ; Hansen, 1927, p. 154 ; Boving, 1929, p. 18 ; Paterson, 1931, p. 902.

Food-plants : *Rumex, Lysimachia vulgaris* and *L. thyrsiflora*.

Larva : length, 4·5–5·5 mm. ; breadth, 1·5 mm.

Pupa : length, 4·5 mm. ; breadth, 2·5 mm.

Imago : length, 5 mm. ; breadth, 2·5 mm.

The larva closely resembles that of *G. nymphææ* : in fact the resemblance is so close that the larvæ of the two species can hardly be distinguished.

The larva pupates on the leaf-surface. The colour of the pupa is yellow at first, but darkens on the dorsal surface until it is brownish-black. The seventh segment possesses on the dorsal side a curious process, while on the eighth there is a pair of well-developed spines. Spiracles occur on all the abdominal segments except the ninth, but those on the sixth to eighth are obsolescent.

The eggs are laid in clusters on the surface of the leaf. They hatch in about six days. There are three stages in the larval condition, each occupying a period of five or six days. The pupal stage lasts over a period of seventeen days.

This species extends to Siberia.

Galerucella tenella Linnæus.

Records : Efflatoun, 1918, p. 206 ; Kleine, 1920, p. 250 ; Paterson, 1931, p 904.

Food-plants : Strawberry, *Spiræa ulmaria.*

Larva : length, 3·9–6 mm. ; breadth, 1 mm.

Pupa : length, 3 mm. ; breadth, 1·2–1·3 mm.

Imago : length, 4·5 mm ; breadth, 2 mm.

The larva and pupa resemble those of *G. calmariensis.*

The colour of the larva and pupa is greenish-yellow and yellow-brown respectively. The larval hairs are yellowish. The larva pupates underground, but without forming any chamber or cocoon. The pupal stage lasts about one month. The imagos take about three to six days to harden. They generally feed at night and in the early morning. When disturbed they drop to the ground, into which they soon burrow and disappear out of sight.

Phyllobrotica quadrimaculata Linnæus.

Records : Kryger, 1919, p. 39 ; Böving, 1927, p 200 ; Boving & Craighead, 1931, pl. 111, figs A, B, E.

Food-plant : *Scutellaria.*

Larva : length, about 7 mm ; breadth, 1·5 mm.

Imago : length, 6·5 mm. ; breadth, 3 mm.

Kryger bred this species from larvæ which produced imagos in about fourteen days in May 1918 in Dyrehaven, Denmark. Böving drew up a short description of the larvæ from Kryger's specimens : they resemble those of *Diabrotica* in many respects. The larvæ pupate underground.

This species also occurs in Siberia.

Pyrrhalta viburni Paykull.

Records : Bouché, 1834, p. 205 ; Kawall, 1854, p. 60 ; Kaltenbach, 1872, p. 299 ; Weise, 1886, p. 620 ; Henriksen, 1927, p. 347 ; Böving, 1929, p. 21 ; Paterson, 1931, p. 901.

Food-plants : *Viburnum opulus*, *V. lantana.*
Larva : length, 7·9–8·5 mm. ; breadth, 2·5 mm.
Pupa : length, 4·75–5 mm. ; breadth, 2·5–3 mm.
Imago : length, 5·5–6 mm. ; breadth, 2·5–3 mm.

Head of larva shining brown ; labrum black, with an anterior light brown median spot. Body with membranous parts greenish-yellow ; prothoracic shield now light yellow, with dark minute spots, a fairly large pale brown area in middle of posterior portion, and a median whitish longitudinal line. Dorsal sclerites of meso- and metathorax, abdominal segments and terminal shield pale brown. Underside of body creamy yellow, with light brown sclerites. Legs shining dark brown. Setæ fairly long and strong, light brownish and somewhat club-shaped, not very numerous on back and sides of larva.

Galeruca tanaceti Linnæus.

Records : Hornung, 1847, p. 4 ; Fuss, 1856, p. 106 ; Heeger, 1856, p. 104 ; Kaltenbach, 1872, p. 344 ; Kittel, 1884, p. 57 ; Weise, 1886, p. 639 ; Xambeau, 1896, p. 131 ; Gowry & Guignon, 1907, p. 89 ; Henriksen, 1927, p. 345 ; Böving, 1929, p. 31 ; Böving & Craighead, 1931, pl. 110, figs. A and G.
Larva : length, 12–14 mm. ; breadth, 3 mm.
Imago : length, 7·5–10·5 mm. ; breadth, 4·5–6·5 mm.
Food-plants : *Sinapis arvensis*, *Achillea millefolium*, *Centaurea jacea*, *Cerastium arvense.*

Head of larva shining blackish-brown ; labrum whitish in front ; frontal suture whitish, with an elongate whitish spot near the anterior halves and often with a large dorsal whitish spot near each ocellus. Upper surface of body with skin, thoracic shield and sclerites blackish-brown ; underside lighter than upper side ; freshly moulted larva bright yellowish-brown. Legs shining, black or dark brown, with points of articulation black. Setæ long, about half the length of a normal segment, whitish, generally thicker at the base and gradually thinning towards the apex, very numerous, and radiating in all directions from conical elevations of most sclerites on the upper side of body ; setæ on underside somewhat shorter.

Galeruca canigouensis Fauvel.

Record : Xambeau, 1908, p. 166.
Larva : length, 7 mm. ; breadth, 2 mm.

Galeruca laticollis Sahlberg.

Records : Bohem, 1852, p. 8 ; Böving, 1929, p. 34.

Food-plants: on flowers and leaves of *Thalictrum flavum* and *T. aconitum*.

Larva: length, about 14 mm.

Imago: length, 9·5–11 mm.; breadth, 6·5–7 mm.

The larva resembles that of *G. tanaceti* with some minor differences. It pupates underground.

Lochmæa cratægi Forster.

Records: de Joannis, 1866, p. 77; Weise, 1886, p. 611.

Food-plant: on fruits of *Cratægus*.

Imago: length, 4·5 mm.; breadth, a little over 2·5 mm.

The larva is yellowish-white, with the head, legs and last segment brown.

Lochmæa suturalis Thomson.

Records: Grimshaw, 1911, p. 414; Henriksen, 1927, p. 348; Van Emden, 1929, p. 283; Paterson, 1931, p. 898.

Food-plant: heather.

Larva: length, 4·5–6 mm.; breadth, 1·25–1·5 mm.

Imago: length, 5·5 mm.

Some points in the life-history of this species are given in the Report on the Grouse. Heather is a food of the grouse, and *L. suturalis* is a pest of the heather, which it destroyed to such an extent as to influence the life of the grouse. Pupation takes place in moss and among the stems of the heather.

Lochmæa capreæ Linnæus.

Records: Ratzeburg, 1839, p. 244; Westwood, 1839, p. 383; Kaltenbach, 1874, p. 591; Nordlinger, 1880, p. 44; Weise, 1886, p. 611; Henriksen, 1927, p. 346; Böving, 1929, p. 29; Paterson, 1931, p. 899.

Food-plants: sallows.

Larva: length, 5·5–9 mm.; breadth, 1·5 mm.

Pupa: length, 2–5 mm.; breadth, 2·5 mm.

Imago: length, nearly 6 mm.; breadth, 3 mm.

The larva closely resembles that of *Galerucella*, and is also very similar to that of *Pyrrhalta viburni*; but there are minor differences.

In the pupa each abdominal segment except the ninth has a prominent lateral tubercle.

Agelastica alni Linnæus.

Records: De Geer, 1775, p. 400; Bouché, 1834, p. 206; Ratzeburg, 1839, p. 244; Westwood, 1839, p. 383; Kaltenbach, 1874, pp. 612 & 634; Weise, 1886, p. 579; Judeich & Nitsche, 1889, p. 607; Scheidter, 1909, pp. 89 & 104;

Portschinski, 1910, p. 168; Aulmann, 1911, p. 265; Boas, 1924, p. 405; Henriksen, 1927, p. 350; Böving, 1929, p. 38; Böving & Craighead, 1931, pl. 110, figs. C and E.

Food-plants: alder (*Alnus*), more rarely on hazel (*Corylus*).

Larva: length, about 11 mm.

Pupa: length, about 6 mm.; breadth, a little over 2·5 mm.

Imago: length, 6–8 mm.; breadth, 3·5–4 mm.

The larva is much longer than many of the species of this group. The body is rather dark, with the head, sclerites, shield and legs shining dark brown; there are some lighter parts on the head and the prothoracic shield. A median longitudinal line on pro-, meso- and metathorax. The first abdominal segment whitish. The setæ are fine, pointed and not numerous. The pupa is formed underground.

Luperus longicornis Fabricius.

Record: Paterson, 1931, p. 905.

Food-plants: sallows, birches.

Larva (first stage): length, 1·2 mm.; breadth, 0·4 mm.

Imago: length, 3·5–5 mm.; breadth, 1·5–2 mm.

The larva differs from that of *Galerucella* in minor points.

Exora (*Exosoma*) *lusitanica* Linnæus.

Records: Mayet, 1890, p. xxviii; 1907, p. 115; Böving & Craighead, 1931, pl. 111, fig. M.

Food-plants: *Narcissus tazetta*, *N. poeticus* and varieties. The larva attacks the bulb of these plants. The imagos attack the flowers of many Compositæ, especially of the genus *Urospermum*.

Larva: length, 15–18 mm.

Imago: length, 7–9·5 mm.; breadth, nearly 3·5 to nearly 5 mm.

The larva is whitish, elongate, narrowed anteriorly and broadest behind the middle. There is an intersegmental belt between each pair of the abdominal segments, of which there are nine, besides the three thoracic and the head. The larvæ and the imagos exhibit great resemblance to those of *Diabrotica* and *Phyllobrotica*.

Sermylassa halensis Linnæus.

Records: de Joannis, 1866; Kaltenbach, 1874, p. 308; Buddeberg, 1884, p. 101; Weise, 1886, p. 661; Henriksen, 1927, p. 349; Böving, 1929, p. 35; Böving & Craighead, 1931, pl. 110, fig. B; Paterson, 1931, p. 905.

Food-plants: *Galium mollugo* and *G. verum*.

Larva: length, 8 mm.; breadth, 2·5 mm.

Pupa: length, 6 mm.; breadth, 2·5 mm.

Imago : length, 6 mm. ; breadth, a little over 3 mm.

The larva resembles that of *Galerucella*, but the tubercles or raised areas are better defined, each having two setæ.

The larva pupates underground.

Galeruca pomonæ Scopoli.

Records : Scopoli, 1763, p. 83 ; Kaltenbach, 1874, pp. 344, 383, 773 ; Kittel, 1884, p. 57 ; Kew, 1886, p. 107 ; Vasváry, 1886, p. 137 ; Weise, 1886, p. 639 ; Davis, 1907, p. 269 ; Brunner, 1914, p. 213 ; Böving, 1929, p. 34.

Food-plants : in Europe leaves near the roots of *Centaurea jacea*, *Scabiosa succisa*, and *Cirsium palustre*. In Illinois (U.S.A.) on *Phlox divaricata* and also *Dentaria laciniata*.

Larva : length, 14 mm. ; breadth, 3·75 mm.

Pupa : length, 8–11 mm. ; breadth, 4 mm.

Imago : length, 8–11 mm. ; breadth, 4–6 mm.

The larva resembles those of *Galeruca tanaceti* and *G. laticollis* with minor differences.

The larva burrows underground to a depth of an inch or less to pupate. It forms a cocoon of particles of earth fastened with a few silken threads.

America.

Resemblance between the genera *Aulacophora* Chevrolat, 1842, and *Diabrotica* Chevrolat, 1844.

Diabrotica is an enormous genus containing over 600 species, all from America, and especially from the tropical part of it, where the majority of the species occur. In the Old World *Aulacophora* represents *Diabrotica*. It contains 158 species, and is almost wholly an Asiatic genus, only two species occurring outside this continent, namely, *foveicollis*, extending to Europe, and *africana*, in Africa. In larval, pupal and adult structure, in breeding habits and in food-plants, there is a remarkable resemblance between these two genera. It is interesting to note that, although the Australasian region, especially the tropical belt, holds most of the species of *Aulacophora*, no similarly extensive and homogeneous genus occurs in Africa along this belt. In America the tropical belt contains most of the species of *Diabrotica*, but few species occurring beyond its limits.

Diabrotica duodecempunctata Fabricius.

Records : Sanderson, 1906, p. 212 ; Garman, 1907, p. 42 ; Sell, 1916, p. 551 ; Arant, 1929 ; Huckett, 1929 ; Böving & Craighead, 1931, pl. 111, figs. C, D, F, G, I, K.

Food-plants: this species has been found on 280 plants, of which the most usual are spinach, kale, peas, cucumber, melon, cantaloupe, pumpkin, beet, mustard, turnip, peanut, corn, cane and coffee-bean. In many cases it has been found to prefer the pollen, the essential organs, or the petals.

Although it has been possible for the beetles to change from an exclusive diet of one kind of food to another, once the change has taken place they are confined to the new food-plants, and would not eat any others. The range of appropriate food-plants may be large, but more often it is quite small.

Larva: length, 12 mm.; breadth, 1·5 mm.

Imago: length, 6·5 mm.; breadth, nearly 4 mm.

The larva is long, cylindrical, somewhat curved and narrowing anteriorly. There are fourteen segments including the head, three thoracic and ten abdominal segments, the eighth abdominal segment slightly shorter and narrower than the preceding abdominal segments, the ninth much shorter, generally reduced, and bearing dorsally a round shield; the tenth is ventral, forming the anal "sucker." Between two segments there is a complete intersegmental fold. The body is soft and whitish. The setæ are rather short and straw-yellow, with darker basal cups. The raised areas or plates from which the setæ arise are thin and hardly recognizable. Each plate has usually one seta, but may have two or more. On the dorsal side of the prothorax is a strongly chitinized plate, usually called the dorsal shield. This, and that on the ninth abdominal segment, are darker than the rest of the body-surface. Seen dorsally the head is broadly ovate and slightly retractile into the prothorax. Contrasting with the whitish colour of the body the head is brown, with some parts darker and the frontal sutures lighter. The more strongly chitinized parts of the mouth are darker brown. The legs are inserted widely apart and attached to the end of small, dark, sub-triangular, hypopleural chitinizations. They are moderately strong and rather short, pale greyish-brown, with coxæ mostly dark and the distal ends of the other segments with narrow dark zones at the points of articulation.

The spiracles are small and all of the same size and lateral.

Experimenting with this species Sell showed that, within certain limits, the longer the beetles fast the greater is their power of endurance.

Diabrotica vittata Fabricius.

Records: Harris, 1852, p. 124; Beutenmuller, 1890, p. 177; Böving, 1927, p. 199; Balduf, 1929, p. 260; Huckett, 1929; Böving & Craighead, 1931, pl. 111, figs. J, L.

Food-plants: larva bores in the stems and roots of pumpkin and squash-vines.

Larva: length, 10 mm.

Imago: length, 6 mm.; breadth, 3 mm.

The larva closely resembles that of *D. duodecempunctata*, but differs in some minor characters. It should also be noted that the first- and second-stage larvæ differ somewhat from the full-fed stages.

The beetles are gregarious when hibernating.

Diabrotica trivittata Mannerheim.

Records: Chittenden, 1910, p. 75; Sell, 1915, p. 519.

Food-plants: pumpkins, cucumbers, squashes, muskmelons etc.

The larva and the life-history of this species are similar to that of *D. vittata*, but it has two generations in the season.

Eggs are laid two inches below the surface of the soil on the tap-root of the plant.

Diabrotica balteata Leconte.

Records: Chittenden, 1910, p. 69; Marsh, 1910, p. 76; Sell, 1918, p. 93; Böving, 1927, p. 199.

Food-plants: wheat (Salvatierra, Guanajuato, Mexico; *A. L. Herrera*, Dec. 1902), squash, melon, lettuce, cabbage, cucumber, string beans, Lima beans, English broad beans, tomatoes, potatoes, egg-plant, pepper, turnips, peas, peanuts, cantaloupe, water-melon, pumpkin, okra, spinach, beets, asparagus, sweet corn, corn, sorghum, alfalfa, cotton, cow peas, soya beans, vetch, *Desmodium tortuosum*, tender fig- and orange-leaves, foliage of *Sesbania aculeata* and *Cajanus indicus* and blossoms of *Dolichos atropurpureus*. Favourite wild food-plant, *Verbesina encelioides*, blossoms and foliage of *Solanum elæagnifolium* and *Helianthus*.

Larva: length when extended, 12 mm.; breadth, 1·25 mm.

Pupa: length, 5 mm.; breadth, 2·5 mm.

Imago: length, 5 mm.; breadth, about 3 mm.

The larva hardly differs from that of *D. duodecempunctata*. The eggs are pale yellowish-buff, with the surface moderately shining and with hexagonal pits well defined and comparatively shallow. In confinement they are laid in masses on the lower surface of cucumber-leaves.

Diabrotica soror Leconte.

Records: Chittenden, 1910, p. 71; Sell, 1915, p. 515; Böving, 1927, p. 198.

The larva differs very little from that of *D. duodecempunctata*.

The colour of the elytra of the adult beetles changes gradually during their lifetime. At first it is normal leaf-green, then yellow-green, and lastly a pale faded green—a sign of old age.

Diabrotica longicornis Say.

Records : Garman, 1907, p. 45 ; Ainslie, 1914, p. 322 ; Böving, 1927, p. 199 ; Böving & Craighead, 1931, pl. 111, fig. H.

Food-plant : corn.

Larva : length, 10 mm.

The larva differs in minor details from that of *D. duodecempunctata.*

The eggs are small and are laid in July, August and September in small crevices among roots. They hatch in late May or early June of the following year. The beetles begin to appear in July, and when they become a pest they are to be found in large numbers during the following two months feeding on fresh corn-silk and pollen. The larvæ bore into the roots, causing considerable damage to the corn-crop.

Diabrotica picticornis Horn.

Record : Chittenden, 1910, p. 68.

Food-plants : blossoms of okra, beets, vetch, horse beans, cucumber.

The eggs are laid singly and distributed over the lower surface of cucumber-leaves. The colour of the eggs is opaque buff, their surface being finely sculptured and ringed with many deep hexagonal pits.

Diabrotica connexa Leconte.

Record : Chittenden, 1910, p. 68.

Monocesta coryli Say.

Records : Riley, 1879, pp. 245–277 ; Beutenmuller, 1890, p. 176 ; Howard, 1905, pp. 81–82 ; Böving, 1929, p. 12.

Food-plants : various species of elm ; also feeds on hazel, *Corylus americanus.*

Larva : length, about 15 mm.

Imago : length, 13·5 mm. ; breadth, 8 mm. It is widest behind the middle.

Dorsally the body is dull brown and leathery, with sclerotizations of about the same colour, though slightly more yellowish and shining. Ventrally it is yellowish-brown. The head is brown and somewhat shining. The legs are brown and shining, lighter on the inner side. The setæ are short to moderately long on the head, the prothoracic and pygidial shields, the laterally projecting lobes of the body and the legs ; elsewhere there are no setæ.

The larva feeds on the underside of the leaves in the first and second instars, but in the third it feeds indiscriminately on either side. The pupa is formed in a simple oval cavity a few inches below the surface of the earth.

Cerotoma trifurcata Forster.

Records : Chittenden, 1897 ; McCônnell, 1915, p. 261 ; Eddy & Clarke, 1929 ; Böving, 1930, pp. 51–58 ; Isely, 1930.

Food-plants : bush and pole beans, cow peas, bush clover, (*Lespedeza* spp.), hog peanuts (*Falcata comosa* L.), tickfoil or beggar weed (*Meibomia* spp.), English horse beans (*Faba* sp.), soya beans, moth beans, kultri beans and *Phaseolus* sp. The root-nodules of the last three plants are damaged.

Larva : length, 7–10 mm. ; breadth, 1–1·5 mm.

Pupa : length, 3–4·5 mm. : breadth, 3 mm.

Imago : a little over 5 mm. ; breadth, 3 mm.

The eggs are laid in clusters in crevices on the underside of clods of earth and between the base of the plant and the earth. An egg is ovate and yellow to deep orange in colour. The eggs hatch in eighteen days in the spring and seven days in summer. The larval stage covers a period varying from three weeks in mid-summer to six weeks or more in the autumn. The pupal stage occupies a period of about four days in mid-summer, but it may be two months in the autumn. There are three or four generations during a year. The larva pupates in a nearly upright position in small earthen cells near the base of the plants or their horizontal roots. The depth to which they descend depends on moisture ; in dry weather they go deeper. They hibernate as adults in winter. They attack the roots, root-hairs and root-nodules. They prefer the latter, although they can successfully live upon the others. They cut off and eat roots. They may gnaw some of the bark from a larger root. When attacking a nodule they cut a hole into it and eat up the entire contents, leaving only the outer shell. Several small larvæ may attack a single nodule. After finishing the contents they crawl out through the hole or may eat their way through. They can travel along the course of roots in search of fresh nodules. They may also go short distances through the soil. They have been found to injure nodules as deep as eight inches and over a foot away from the base of the plant.

Monoxia puncticollis Say.

Records : Chittenden & Marsh, 1920 ; Böving, 1929, p. 29.

Food-plants : sugar beet, garden or table beet, mangel-wurzel and Swiss chard. The adults also attack spinach (*Spinacia obraca*), lamb's quarters (*Chenopodium album*), sea-blite (*Dondia erecta* and other species), Russia thistle (*Salsola pestifer*), saltwort (*S. kali*), saltbush (*Atriplex argentea* and other species), sea purslane (*Sesuvium sessile*) and pigweed (*Amaranthus retroflexus*). The larvæ are more restricted in their choice of food. This species normally lives in alkali regions, breeding on such weeds as those mentioned above, but when it becomes abundant there is an overflow to cultivated plants, which are often greatly damaged.

Larva : length, 8–9 mm. ; breadth, 0·6–0·7 mm.

Pupa : length, 6·5–8 mm. ; breadth, 3·5–4 mm.

Imago : length, 7–8·5 mm. ; breadth, 3–4 mm.

The larva closely resembles that of *Galerucella.* The imagos of the two genera are also similar; the distribution of *Monoxia* is entirely American and that of *Galerucella* world-wide. It is possible that some species which are now included in *Monoxia* would find a more suitable place in *Galerucella*, but *Galerucella* is not a well-defined genus.

The beetles emerge from hibernation during March and April, feed on the weeds, mate, and within a short time begin laying eggs. These are rounded, orange-yellow, and are laid in masses on the underside of leaves. They hatch in from eight to eighteen days, depending upon the temperature, and larvæ complete their growth in from fourteen to twenty-nine days.

The larvæ are external feeders, eating holes in the leaves ; sometimes cutting them right through. When full-fed the larva enters the ground to a depth of from half an inch to two inches and forms a cell in which the soft yellow pupa develops. The pupal period extends over eight or nine days. There are two complete generations and a partial third generation in a year. In the alkali areas the beetles hibernate under tufts of grass, heaps of dead weed and other rubbish. The life-history of this species has been studied in Colorado.

Monoxia consputa Leconte.

Records : Essig, 1926, p. 473 ; Böving, 1929, p. 28 ; Böving & Craighead, 1931, pl. 110, fig. D.

Food-plants : the larva mines the leaves of *Chenopodium album* and of species of *Atriplex* (King City, California) and also of *Grindelia.* The larvæ do not attack sugar beet, but the adults seriously injure the tops of the beets.

Larva : length, about 6 mm.

Imago : length, a little over 5 mm. ; breadth, about 2 mm.

The larva of this species differs fundamentally from that of *Monoxia puncticollis* Say. Not only so, but according to Böving it does not resemble any other larvæ, so far known to him, of the whole subfamily. Attention must be drawn to the fact that such profound difference does not exist between the imagos. The larva presents characters which are peculiar to many leaf-miners. It has, for example, a well-developed and strong frons, very long posterior prolongations of the epicranium, and the absence from the body-segments of distinct sclerites with well-developed setæ.

Galerucella cribrata Leconte.

Records : Woods, 1924, p. 137 ; Böving, 1929, p. 26.

Food-plants : *Solidago nemoralis* Ait., golden rod. They also eat other species of *Solidago*, but in the laboratory they would not eat *Solidago graminifolia* Linn. They would not eat the food-plants of other species of *Galerucella*, namely, alder, blueberry, bonesit, elm, meadow-sweet, red cherry, sheep laurel, willow and yellow pond-lily.

Larva : length, about 7 mm.

Galerucella vaccinii Fall.

Records : Fall, 1924, p. 88 ; Woods, 1924, p. 93.

Food-plants : *Vaccinium pennsylvanicum* Lam., low sweet blueberry. Both larvæ and imagos would eat other kinds of blueberry, but would not eat other plants that are the food-plants of other species of *Galerucella*, namely, alder, bonesit, elm, golden rod, meadow-sweet, red cherry, sheep laurel, sweet gale, willow and yellow pond-lily.

Larva : length, 6–6·5 mm.

Pupa : length, about 4·5 mm.

Imago : length, 3·7–4·7 mm.

Galerucella decora Say.

Record : Woods, 1924, p. 105.

Food-plants : *Salix rostrata* Richards ; other species of *Salix* are also eaten. Tests with other plants show that this species will eat all species of willow and poplar. Plants other than these will not be eaten, including the food-plants of other species of *Galerucella*, namely, alder, azalea, bonesit, elm, golden rod, meadow-sweet, red cherry, sheep laurel, sweet gale and yellow pond-lily.

Larva : length, 7–7·5 mm.

Pupa : length, about 4·5 mm.

Imago : length, 4·5–5·5 mm.

Galerucella perplexa Fall.

Records : Fall, 1924, p. 90 ; Woods, 1924, p. 112.

Food-plant : brown willow.

Larva and pupa closely resemble those of *G. decora*. The life-histories of the two species are very similar, the only constant noticeable difference being that *perplexa* passes a slightly longer time in all of its preparatory stages than does *decora*.

Galerucella spirææ Fall.

Records : Fall, 1924, p. 89 ; Woods, 1924, p. 122.

Food-plants : *Spiræa latifolia* Borkh., meadow-sweet. Both larvæ and imagos would eat several species of cultivated *Spiræa*, but not those which have woolly leaves, for example, the hardhack. They refuse the principal food-plants of other species of *Galerucella*, namely, alder, azalea, blueberry, elm, golden rod, red cherry, sheep laurel, willow and yellow pond-lily.

Larva : length, 6·5–7 mm.

Pupa : length, about 4·5–5 mm.

Imago : length, 4–4·5 mm. ; breadth, 2–2·5 mm.

Galerucella alni Fall.

Records : Fall, 1924, p. 89 ; Woods, 1924, p. 115.

Food-plants : *Alnus incana* Linn. (speckled alder). This is the natural food-plant, but the larvæ will eat other species of alder. They eat indifferently the leaves of the low sweet blueberry, *Vaccinium pennsylvanicum* Lam., but they refuse all other species of blueberry ; grey birch, *Betula populifolia* Marsh, and hazel-nut, *Corylus americana* Walt., both related to alder, have also been refused by the larvæ and imagos. Neither would they eat the host-plants of other species of *Galerucella*, namely, azalea, elm, golden rod, meadow-sweet, red cherry, sheep laurel, yellow pond-lily and willow.

Larva : length, 8 mm.

Pupa : length, about 4·5 mm.

Imago : length, 4·8–5·2 mm.

Galerucella kalmiæ Fall.

Records : Fall, 1924, p. 87 ; Woods, 1924, p. 127.

Food-plants : *Kalmia angustifolia*, Linn., sheep laurel. This is the natural food-plant ; both the larvæ and imagos will readily eat mountain laurel, *Kalmia latifolia* L. They will not eat any other plant, including the food-plants of other species of *Galerucella*, namely, alder, azalea, blueberry, elm, golden rod, meadow-sweet, red cherry and yellow pond-lily

Larva : length, 7–7·5 mm.

Pupa : length, 5–5·5 mm.

Imago : length, 4·5–5·7 mm. ; breadth, 2·4–2·9 mm.

Galerucella cavicollis Leconte.

Records : Chittenden, 1899, pp. 90–93 ; Cushman & Isely, 1916, pp. 1–28 ; Woods, 1924, p. 133.

Food-plant : *Prunus pennsylvanica. P. serotina* and *P. virginiana* were immune from attack. The adults eat only the leaves.

Larva : length, 7 mm.

Pupa : length, a little less than 5 mm.

Imago : length, 4·5–5·5 mm.

The egg is nearly spherical, bright reddish-brown, and has a surface sculptured with pits of hexagonal shape. The eggs are laid in the rubbish at the base of the tree, and hatch in about two weeks. In another two weeks the larvæ become full-fed ; they then enter the ground, in which they pass their pupal stage, which occupies a period of two to three weeks. They hibernate as adults, becoming active in the late spring. By the end of September they begin to disappear. There are three instars in the larval life. There is no great visible change in the general appearance of the larva during its development. In each instar the larva is very dark olive in colour. The dorsal side has transverse patches across the middle and spots on the dorso-lateral portions on each side ; both patches and spots carry setæ. The ninth segment has ventrally a crescent-shaped plate in front of and partially hidden by the small tenth segment, which bears the anus. The pupa is bright yellow in colour, and has a pair of strongly curved spines at the apex of the abdomen.

Galerucella rufosanguinea Say.

Record : Woods, 1924, p. 133.

Food-plants : *Rhododendron nudiflorum* Linn., the purple azalea. Van Dyke has recorded this species on the flame-coloured azalea (Journ. Econ. Ent. v, 1911, p. 431, and v, 1912, p. 219).

Its life-history and habits are similar to those of the *cavicollis* group.

Galerucella notata Fabricius.

Records : Woods, 1924, p. 137 ; Böving, 1929, p. 23.

Food-plant : feeding on leaves of *Eupatorium perfoliatum.*

Larva : length, 7 mm.

Imago : length, 5 mm. ; breadth, 2·5 mm.

The larva constructs an oval cocoon of a loose network of filaments attached to a leaf.

Galerucella notulata Say.

Record : Woods, 1924, p. 138.

Food-plant : *Ambrosia artemisiæfolia* Linn., a common weed called the Roman wormwood.

There are two generations a year in Connecticut, the imagos of the second generation hibernating.

Trirhabda canadensis Kirby.

Records : Balduf, 1929, p. 35 ; Böving, 1929, p. 12.

Food-plants : *Solidago*, golden rod ; *Artemisia*, sage.

Larva : length, about 12 mm.

Imago : length, 7–8 mm.

The eggs are laid in masses, cemented together by a secretion, in the soil or in the folds of dry leaves on the ground. The species hibernates in the egg-stage. There is only one generation in the year, June–July to August–September. They feed exposed on the more tender leaves near the tops of the plants.

The larva varies from brown to blue-black, with the underside much lighter. This is the general appearance, but on close examination some differentiation in the colour among the various parts becomes apparent. The prothoracic shield is uniformly iridescent, dark with light median suture. The anal shield and dorsal and lateral sclerites are transversely striate, with indistinct margins gradually blending into the similarly coloured, dark, iridescent skin. The sclerites of the underside are brown. The legs are blackish, with the inner side lighter. The setæ are whitish, thin, pointed, and easily broken, short and moderately numerous.

Trirhabda virgata Leconte.

Record : Böving, 1929, p. 14.

Food-plant : *Solidago*.

The larva strongly resembles that of *T. canadensis*.

Trirhabda brevicollis Leconte.

Records : Howard, 1904, p. 108 ; Böving, 1929, p. 15.

Food-plants : *Zanthoxylum*, prickly ash ; *Citrus aurantium*, orange.

J. D. Mitchell, of Victoria, Texas, says " the larvæ burrow into the ground where it is slightly raised, making runs or galleries from which they crawl out or about day and night, but never more than a few inches from the colony home." The pupal stage is passed underground. The full-fed larva resembles that of *T. canadensis*, but is generally lighter in colour: thus, where it is blue-black in *canadensis* it is brown in *brevicollis*, and where brown in *canadensis* it is lighter brown or yellow in *brevicollis*.

Trirhabda nitidicollis Leconte.

Record: Böving, 1929, p. 15.
Food-plants: *Gutierrezia sarothræ*, *Chrysothamnus*, *Artemisia*.

The larva resembles that of *T. canadensis*, differing only in details; the skin and sclerites have a greenish-bronze tint on the dorsal aspect and pale yellow on the ventral.

Trirhabda tomentosa Linnæus.

Record: Böving, 1929, p. 15.
Food-plant: *Baccharis halimifolia* Linn., groundselbush.

The larva resembles that of *T. canadensis* in most characters.

Trirhabda attenuata Say.

Record: Böving, 1929, p. 15.
Food-plants: *Solidago*, *Artemisia*.

The larva of this species is somewhat smaller and more elongate and cylindrical than that of *T. canadensis*.

Doris Holmes Blake has recorded the names of food-plants in her "Revision of the Species of Beetles of the Genus *Trirhabda* North of Mexico" (Proc. U.S. Nat. Mus. lxxix, 1931, 36 pp.). The paper deals with imagos, and does not contain information on the earlier stages.

Summary of Larval and Pupal Structure.

1. There is a correspondence between the size of the full-fed larva and that of the imago—that is to say, a small larva will not give rise to a large imago, and *vice versa*, the variation being confined to at most three millimetres in length.

2. The shape of the larva is always elongate, almost parallel-sided, narrowing slightly anteriorly and posteriorly.

3. There are fourteen segments, including the head, three thoracic and ten abdominal segments. The head and last but one abdominal segments may be called the critical segments of the body, because they show modifications more than the others. That is expected because of the mechanics of locomotion and other habits. The head bears the mouth-parts and probably some sensory apparatus, and the tail-end sometimes bears special structures, the anal "sucker" or "pseudopod," a distinct segment, being placed ventrally.

4. The head is a strongly chitinized convex capsule; in those larvæ which have partial boring habits it tends to become somewhat flattened. On the upper surface of the head there are a median and lateral sutures; these latter are not always present. The oral orifice is placed somewhat ventrally, and is surrounded by various articulated structures suited to the acquisition of vegetable foods only. For example, the mandibles or jaws are generally broad and provided with several teeth, but these are never sharply pointed. On the upper side there are the clypeus and labrum, below which is, first, a pair of mandibles, then a pair of maxillæ (each composed of several parts), and, finally, the labium. There is a pair of palpi, composed of segments, appertaining to both the labium and the maxilla. The disposition and arrangement of the mouth-parts are similar to those of the imagos. To see them properly special preparation for the microscope is necessary.

5. The prothorax possesses on its dorsal side a shield, a strongly chitinized piece which sometimes has its surface pitted and bearing short hairs. On the meso- and metathorax such a structure is never present.

6. The abdominal segments are similar to one another in structure. Seen from above each is slightly produced on either side. They are of uniform height throughout. In some species the segmentation is particularly distinct, in others it is not so sharp, but it is always recognizable. There are often transverse folds on the segments.

7. Of particular interest are the raised areas and hairs. No larvæ in the GALERUCINÆ have been discovered which do not possess hairs. They are present in almost every part of the body in some form or other. Their significance and value in "Systematics" constitute a problem which should be properly studied. The raised areas both on the upper and lower surfaces have certain arrangement and order. These have received attention from various students, for not only do they occur in the Galerucine larvæ, but they are found in the larvæ of other families of beetles and of some Lepidoptera and Tenthredinoidea. (For Lepidoptera see Dyar, "Classification of Lepidopterous Larvæ," Ann. N.Y. Acad. Sci. viii, 1893–5; Packard, "Bombycine Moths of North America," 1895–1905; Fracker, S. B., "The Classification of Lepidopterous Larvæ," Illinois Biological Monographs, ii, 1915; and for Tenthredinoidea see Yuasa, Hachiro, "A Classification of the Larvæ of the Tenthredinoidea," Illinois Biological Monographs, vii, 1922.) These raised areas have been variously termed warts, tubercles, humps, horns etc. They bear hairs. They occur on each segment from the mesothorax to the eighth or ninth abdominal segment, both on

the upper and lower surfaces. Their arrangement is somewhat different on the upper surface from that of the lower surface, where they are generally fewer. They are found in two, or in some cases three, transverse rows across the segment somewhat in the following order : there is a large one in the middle, and on each side of it there are two, three or more smaller ones, which are disposed in such a manner that they form a pattern. In order that they can be referred to easily, and so that their position and condition could be discussed in an intelligible way, certain terms, such as dorsal, dorso-lateral etc., indicating their regional sites and number have been assigned to them. The variations in size and shape, and their positions relative to each other, all afford points of discussion in considering relationship. On this subject Fracker's work should be consulted. In any individual species the setal pattern can be described *in extenso,* but there should be illustrations to make it easier to follow the verbal description. As the larvæ of the GALERUCINÆ are all soft-bodied insects, the pattern of these raised and somewhat more strongly chitinized areas serves as a frame-work, allowing the soft body mechanically to maintain its position. In addition the setal pattern may have other functions.

8. There are always nine pairs of functional spiracles in the larva, one thoracic and eight abdominal. They are all annular, small and of similar size. The thoracic spiracle is situated laterally between the pro- and mesothorax, but owing to modification of the body-structures its position and direction of opening may vary slightly. The abdominal series of spiracles begins always with the first abdominal segment, each successive one possessing a pair. Their position is dorso-lateral or lateral, and they are usually surrounded by raised sclerites. For the purposes of this work it is not necessary to go into their structure ; but, if the student is interested, microscopic preparations should be made for their proper study, and he will find that there are several ways by which the closure is effected, and this may be of considerable classificatory importance.

9. Each thoracic segment has a pair of well-developed legs on the underside, inserted at some distance from each other. Each leg consists of the following segments : coxa, trochanter, femur, tibia, claw. The claw has a whitish rounded appendix on its concave side.

10. The colour of the larva is not uniform, some parts being darker than others. More strongly chitinized parts, such as the head, mandibles, legs, tubercles, anal plate and spiracular rims, are black or dark brown, and the softer integuments are yellow or greenish-yellow. The freshly moulted larvæ are pale, due in part to the darker parts taking

some time to develop their full colour, in part to the colour of the soft parts being to some extent due to the food in the alimentary canal, but the body-tissues have initially a certain pigmentation. In the pupa, also, there is a colour-change as the perfect beetle develops within the pupal envelope.

11. The formation of the pupa is one of the crises in the life of the organism, which now changes from an active feeding creature to a quiescent and helpless state. The larval organs break down, and from the disintegrated tissues are formed the organs of the imago. To facilitate this change the larva undergoes a preparation in the last larval stage. Although in the pupa many adult characters appear, it has some structures of its own, which belong neither to the larva nor to the imago. These may be spines, processes, plates or special spiracular devices. They are not peculiar to the GALERUCINÆ alone, and occur in the pupæ of all insects with complete metamorphosis.

Summary of Life-histories and Habits.

1. The eggs may be laid in crevices in the soil or on the bark at the base of the stem of the food-plant. They may or may not be covered with fæcal matter. Sometimes they are attached to the leaf by some sort of secretion. They are in some cases laid singly, but more often in clusters. They are small, roundish, yellowish, becoming darker after the lapse of a little time. In some cases the surface shows regular geometrical sculpture. Some Galerucine beetles hibernate in the egg-stage (*Trirhabda*).

2. The imagos generally hibernate among the dead leaves at the base of the plants during the winter, becoming active in the following spring. Under favourable conditions they fly about in winter also. They feed and lay eggs.

3. From the time the eggs are laid in the spring to the autumn there may be one to five generations, according to the climate and the length of the season. When there is more than one generation they usually overlap.

4. Often the larvæ enter the ground to moult, and in most cases they pupate underground. Sometimes the pupa lies bare, but often the larva makes some kind of chamber in which to undergo the change. In some cases a loose kind of cocoon is formed for pupation.

5. The larva may bore into the stems and roots, and at least in one case, *Cerotoma trifurcata*, it destroys the nitrogen-fixing nodules. The leaves are generally eaten both by the larva and the imago. Sometimes the larva eats small holes in the leaves and sometimes they are skeletonized.

6. As a rule each species has a favourite food-plant or a group of food-plants, but they may eat closely related plants ;

rarely only have they been induced to eat plants other than their own host-plants; so it happens that one species of beetle of a given genus will not eat the host-plants of other species of the same genus.

7. Copulation takes place several times during the season, so that feeding, copulation and egg-laying continue during a certain period of time.

8. Some species show the habit of becoming motionless when disturbed, a habit to which the expression "feigning death" has been applied.

9. In order to be able to hibernate the beetles must have some substance stored up which would supply them with the energy required during hibernation. In a series of interesting experiments Sell (1916) has demonstrated that *Diabrotica duodecempunctata* showed, within certain limits, greater powers of endurance—that is, took longer time to get fatigued the longer they fasted. A relation seems to be established between the activity and power for activity, that is, the availability of energy-producing substance. The more active the organism is the more can it draw on the stored-up energy, and *vice versa*; but, of course, the total amount that can be so drawn from the tissues is limited.

Technique of Preparation of Larvæ for Microscopic Examination.

In order that the collector and the student in the field may obtain satisfactory results from his collection, the following methods of preservation will be found useful :—The larvæ and imagos, when they can be caught together, should be put together in 70 per cent. alcohol at once. To have the larva and its imago together adds very materially to the value of the larval specimen ; and later the larvæ could be prepared for the microscopic study of the skin only. But if the internal structure is to be studied they should be fixed first, and then be preserved in strong alcohol.

The following method is recommended for the preparation of the skin :—

All specimens should be measured and studied as whole animals, both in alcohol and in the dried condition when out of it. In each case some structures are more clearly visible than in the other. Then the larva should be treated in 10 per cent. caustic potash. If the specimen is large it is better that a slit should be made in some suitable place. The specimen is put in the potash in a test-tube, which is placed in a water-jacket. The water is gradually raised from a low heat to boiling-point; the application of the heat should be controlled and should be gradual. When the larva is cleared of its internal organs, or at least part of them, it is put in glacial acetic acid. This has the property of penetrating quickly, and in a short time the specimen looks very clear, showing many structures and connections between sclerites. It is important to examine specimens thus cleared in a floating condition, as in this way the clear specimen can be examined from many aspects. If it is desired the specimens can be preserved in strong alcohol in this condition; but to examine a structure under a high magnification it should be mounted in balsam. To do this the specimen should be put in clove-oil or terpineol. Both reagents will clear the specimen; the former, however, will make it brittle if left in for any length of time, or even overnight, but the terpineol will keep it soft and pliable, so that it can be mounted in any desired position. The disadvantage of these two reagents is that they take a very long time to dry in the balsam, and if the specimen is stained they discharge the stain. To avoid these effects, and to ensure quicker drying of the balsam, one can use carbo-xylol, in which the specimen can be put after the acetic acid treatment. Examples can be stained in acid fuchsine, but a better stain for chitin is congo red. Aqueous solution should not be used. Dissected parts can also be treated in the same way.

Consideration of the Value of Immature Stages as Guides to Relationship among Species, and the reason for not removing Aulacophora *and other allied Indian Genera from the* GALERUCINÆ.

In view of the fact that Böving (1927 & 1929) has proposed alterations in the present classification of the GALERUCINÆ that affect the genera dealt with in the present work, it is necessary to examine briefly the circumstances of the case.

Böving (1927) has discussed the taxonomic position of GALERUCINÆ and HALTICINÆ and of the genera *Diabrotica* (America), *Phyllobrotica* (world-wide), *Monocesta* (America), *Trirhabda* (America), *Lochmæa* (Europe, parts of Asia, parts of America), *Galerucella* (world-wide), *Monoxia* (America), *Galeruca* (world-wide), and *Sermylassa* (Europe, Siberia, America). In 1929 he published a study of a species of *Cerotoma* (America), a genus of which the larva resembles those of *Diabrotica* and *Phyllobrotica*. In the same year also appeared a fuller study of the larvæ of one species of *Monocesta*, six species of *Trirhabda*, eight of *Galerucella*, two of *Monoxia*, one of *Lochmæa*, three of *Galeruca*, one of *Sermylassa*, and one of *Agelastica*.

The study of the larvæ of these genera of Galerucine beetles shows that they (the larvæ) fall into two groups, each possessing a certain set of characters that the other lacks. We may, for the present purpose, designate these groups I and II.

It is found that some of the larvæ of the HALTICINÆ also fall into similar groups, I′ and II″. From this it is argued that those genera that possess larvæ belonging to the groups I and I′ should be combined to form one subfamily, while the genera whose larvæ exhibit the characters of groups II and II″ should form another; or, alternatively, if this is not possible, that the genera of group I (Diabrotica-Phyllobrotica group) should be removed from the GALERUCINÆ and put amongst the HALTICINÆ.

Against these proposals it may reasonably be argued, (1) that the results of a study of the larvæ of, say, at most forty species, belonging to a few genera out of about 3,700 species of Galerucine beetles, cannot be assumed to be representative of the whole group. The study of the larvæ of more species may well reveal further types, and it would then be necessary to propose yet further alterations in the scheme of classification; and (2) the present classification is based on the characters of the adults. To suggest, because it has been found that in a comparatively few species the characters of the larvæ do not always correspond to those of the adults, that the present scheme should be changed in order to agree with the larval characters, is to attach a greater importance to the larval characters than to those of the adult; and in view of the fact that our knowledge of the group is overwhelmingly of the adult characters such an attitude does not appear to me justified. It must also be remembered that larvæ resembling one another sometimes produce imagos that differ considerably, while larvæ that differ from each other may produce similar imagos. The characters of the pupæ or of the ova might with equal justification be regarded as of great importance and be utilized as a basis on which to found proposals for the alteration of the scheme of classification, for there is no reason why the pupa and ovum should not have the same taxonomic value as the larva.

In order to appraise the taxonomic value of the larvæ information on the following points is necessary:—(*a*) How far the larval characters are constant in the species—that is to say, is the larva more constant than the adult? In some cases the adult is more constant than the larvæ, and *vice versa*. (*b*) How far and in what way do larvæ react to stimuli? (*c*) What are the limits within which larval characters are modified by such reactivity as they possess? (*d*) How are such modified characters correlated to adult characters? Unless these questions are answered, at least in the case of some larvæ, the true significance of a character of the larvæ can never be known. Without attempting to obtain information on these points, to allow speculation on relationship based on a few larval characters to modify the system based on the adult characters is to introduce confusion. It must not be supposed that I suggest that the larvæ should not be studied or that such a study does not throw light on the relationship between organisms. In my paper "On the Structure of Larvæ of Hispine Beetles.—III.," Proc. Zool. Soc. Lond. 1933, pp. 669–680, I have shown how the structure of the larva first indicated the true affinities of *Platyauchenia*. The adults when removed from the CASSIDINÆ to the HISPINÆ found a natural place in the latter group, showing obvious relationship to other species already included there.

Böving (1927) remarks: "If, however, it is deemed advisable, on account of the characters of the imagines, to retain the two subfamilies Galerucinæ and Halticinæ, the Diabroticini and Phyllobroticini should be removed from the first and placed in the second . . . ." The reasons for the GALERUCINÆ and HALTICINÆ being retained as separate subfamilies are equally applicable against the removal of the *Diabrotica* group from the former to the latter, since the adult characters of the *Diabrotica* group are those of the GALERUCINÆ and not of the HALTICINÆ.

From the considerations noted above I do not think it necessary to remove from the GALERUCINÆ the genus *Aulacophora*, which must be closely related to *Diabrotica* by reason of the strong resemblances between the two genera in all stages of life, as well as in habits and food-plants.

Considerations to show why the GALERUCINÆ is Treated as a Subfamily in this Work.

A few words are necessary on this point, because Böving and Craighead (1931, p. 79) have proposed a new classification of the CHRYSOMELIDÆ, in which the GALERUCINÆ is treated in a different way: and as I do not agree with this, my reasons in favour of the view I have adopted in the present work are stated below.

Böving and Craighead admit that they have intentionally stressed the larval characters. Accordingly certain views have been formed, and these are expressed in a large synoptical key. Had they considered the adult and pupal characters in correlation with the larval characters they would have formed views different from those expressed.

Their proposal is to form a large superfamily or series called CHRYSOMELOIDEA, in which all the other groups so far called subfamilies have been raised to family rank. The GALERUCIDÆ is divided into GALERUCINÆ, DIABROTICINÆ and ALTICINÆ. In order to give *Diabrotica* and allied genera the rank of a subfamily a large change became necessary. But when the proposal is studied from the point of view of the adult characters difficulties are experienced.

In the " Synopsis " the authors raise most of those groups hitherto considered as families into superfamilies and those considered subfamilies into families, and the process is carried on in the smaller groups.

In effect the change is verbal or nominal, and not conceptual, so far as the whole group of Chrysomelid beetles are concerned, because they still consider that the groups should remain together, although in a higher rank. This raises the question as to what are the conceptions of the family and subfamily ranks.

The present picture holds the field, and to alter it the onus of proof lies on those who want to alter it. In the present case it must be proved that the larval resemblance has greater value in showing genetic relationship, and this I do not admit. The Galerucinæ, therefore, should remain a subfamily, as it is in the present scheme of classification.

BIBLIOGRAPHY.

The following is a list of references concerning the earlier stages, life-histories, or habits, so far as they are known, of species of Galerucinæ from all parts of the world. The references to works of more ancient times are probably complete, but those of recent years, and especially those relating to agricultural pests in America, are not complete, although in the publications listed here additional references very often occur.

1763. Scopoli, G. A.—Entomologica carniolica. Vienna. 43 plates; 420 pp.

1775. De Geer, C.—Mémoires, v, pp. 394–407.

These pages occupy the last section of this volume and give descriptions of larvæ of Coleoptera. In plate 9 seventeen figures show the earlier stages of some eight species of Chrysomelidæ. In plate 10 figs. 1 to 13 relate to species of Chrysomelidæ, of which figs. 3 to 6 refer to *nymphææ*.

1834. Bouché, P. F.—Naturgeschichte der Insekten. Berlin. 216 pp.; pls. i–x.

1839. Ratzeburg, J. T. C.—Die Forst-Insecten. 2nd ed. i. Berlin. 247 pp.; with many coloured plates. The first edition was published in 1837.

1839. Westwood, J. O.—An Introduction to the Modern Classification of Insects. London. 462 pp. Published in two volumes.

1854. Kawall, H.—Correspondenzblatt des naturforschenden Vereins zu Riga, vii, 1854, p. 60.

An account of the habits of larvæ of *Galeruca viburni* was communicated as correspondence to the secretary.

1856. Fuss, C.—Zur Entwickelungsgeschichte der *Liparis morio* und *Adimonia tanaceti*. Verh. u. Mittheil. des Siebenbürgischen Vern. f. Naturwissenschaften zu Hermannstadt, vii, pp. 104–7.

1858. Heeger, E.—Beiträge zur Naturgeschichte der Insecten. Sitzungsberichte der K. Akademie der Wissenschaften, Wien, xxix, pp. 100–120; with 6 plates.

1858. Leinweber.—Zur Naturgeschichte des Ulmen-Blattkäfer, *Galleruca xanthomelæna* Schrk. Verhandlungen Zool.-bot. Gesellschaft, Wien, viii, p. 29.

1862. Harris, T. W.—Treatise on some of the Insects injurious to Vegetation. Boston. 640 pp.

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Part II.—SYSTEMATIC.

Method adopted in the following Descriptions.

In the following descriptions the subject matter is arranged as follows :—First, a general statement regarding the form and facies and the colour and colour-pattern is given in a short paragraph ; secondly, the structural details are given under the headings *Head*, *Prothorax*, etc. ; thirdly, the measurements are stated ; fourthly, a list of the localities from which specimens have been obtained follows ; and, finally, the location of the type and, if necessary, other remarks.

In most cases I have seen the type ; where I have not the fact is stated.

In all cases the generic description applies equally to the various species in the genus, and where new species are described but a full description is not given it must be understood that additional information should be looked for under the generic description. In the case of new species the number of specimens before me when the description was drawn up is stated. In certain cases some interesting relevant structures have been described for the first time.

In dealing with the question of the synonymy I have followed strictly the rules of priority, and have been uninfluenced by any other consideration.

The "Keys" have been constructed according to the second method—the " numerical form "—as explained in my volume in this series (1926, p. 14). The Keys are intended merely to facilitate the recognition of the various species, and the characters used in their construction must not be assumed to be important indications of close relationship.

Unless otherwise stated all genotypes have been fixed by the present writer.

In the present study the following approximate magnifications have been used :—With the monocular microscope, used for the slides, from 80 to 400 diameters, and with the binocular, used for the whole insects, from 15 to 63 diameters.

With regard to the references given in this work, both in the general and systematic parts, the original publication in each case has been examined, and, in consequence, it has been necessary to correct several previous citations.

Key to the Primary Sections.

All claws simple	Section I, p. 72.
All claws not of the same character or different in the sexes	Section II, p. 75.
All claws bifid	Section III, p. 86.
All claws appendiculate	Section IV, p. 273.

So far as the present work is concerned Section I contains two genera, namely, *Madurasia* Jacoby and *Leptosonyx* Weise. Section II contains two genera, namely, *Doryscus* Jacoby and *Apophylia* Dup. & Chev., containing five species. When a Galerucine beetle from our regions is to be identified it is first necessary to make sure that it does not belong to these genera. Then it will easily fall either in Section III or Section IV.

It will be noticed that corresponding to species belonging to one section there are similar species in one of the other sections. For example, if there is a species of a certain facies which has all the claws bifid, thus falling in Section III, it is sometimes possible to find another species of similar facies, but with appendiculate claws, and so falling in Section IV, or with other claw characteristic which places it in another section. This correspondence occurs only in some cases: but there must be some significance, though as yet unknown, in the fact that species of otherwise similar structure differ in that of the claws only.

SECTION I. (All claws simple.)

This section contains two genera.

Genus **MADURASIA** Jacoby.

Madurasia Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 280.

GENOTYPE, *Madurasia obscurella* Jac.

This is a monotypic genus.

Body small, oblong.

Head with the frontal tubercles distinct, sharp and rather elongate. Antenna extending to the middle of elytron; first segment longest and club-shaped. *Prothorax* subquadrate, with the sides rounded, each corner bearing a fine seta. *Scutellum* small, broad, triangular. *Elytra* slightly broader at the base than the prothorax; humerus not very prominent. *Underside*:

elytral epipleuron broad at the base, but narrowing considerably behind the middle. Legs long, slender; hind legs longer than either the front or the middle legs; posterior tibia with an apical spine on the underside; first segment of the posterior tarsus longer than the remaining segments together; claws simple.

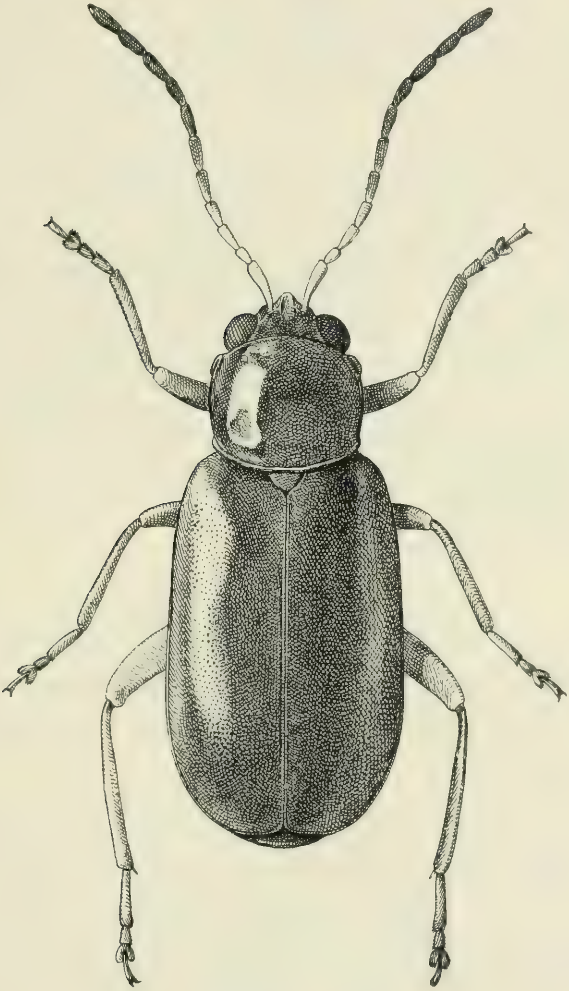

Fig. 22.—*Madurasia obscurella* Jac.

Distribution. INDIA.

1. **Madurasia obscurella** Jacoby.

Madurasia obscurella Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 281.

General colour dirty brown; head almost black; prothorax darker brown; underside also darker brown; an obscure, broad, blackish stripe common to both elytra; antenna piceous, in some cases the two or three basal segments somewhat lighter. Underside more shining than the upper side.

Head with the vertex impunctate; area between the roots of the antennæ and the labrum roughly punctate, and bearing long hairs. Eyes strongly convex. First segment of antenna three times as long as the second; third nearly equal to second; fourth slightly longer than third; fifth very slightly shorter than fourth; sixth nearly equal to fifth; seventh to eleventh equal; last bluntly pointed. *Prothorax* with the upper surface uniformly convex and closely punctate. *Scutellum* with the apex rounded and the surface smooth. *Elytra* closely and confusedly punctate; under a high magnification the background appears to be finely shagreened. *Underside* hairy; abdominal sternites finely punctate.

Length, 2·5 mm.; *breadth*, 1·25 mm.

Distribution. MADURA (Andrewes Coll.); NILGIRI HILLS (*H. L. Andrewes*).

Type in the British Museum.

Genus **LEPTOSONYX** Weise.

Leptosonyx Weise, Deutsche Ent. Zeitschr. xxix, 1885, p. 315; Ins. Deutschl. vi, 4, 1886, p. 576.

Leptonyx Jacobson, Horæ Soc. Ent. Ross. xxix, 1895, p. 555.

GENOTYPE, *Galleruca silphoides* Dalman (South Russia). Fixed by Weise.

Somewhat broad, depressed beetles.

Head as broad as the prothorax, frontal tubercles fully developed. Antenna thick, extending to about the middle of the elytron; first segment longest. *Prothorax* broader than long; sides rounded; front and hind margins almost straight; upper surface roughly sculptured. *Scutellum* broader than long, quadrate, with the apex rounded, surface smooth. *Elytra* somewhat broader at base than the prothorax, apex often dehiscent; upper surface roughly sculptured and with more or less pronounced longitudinal ribs; pygydium exposed, more so in the females. *Underside*: legs fairly strong, long; claw-segment of tarsi projects much beyond the feeble bilobed segment; claws long, simple.

Distribution. TURKESTAN. CAUCASUS. SIBERIA. MONGOLIA. TRANSCASPIAN REGION.

2. **Leptosonyx octocostatus** Weise.

Leptosonyx octocostatus Weise, Archiv f. Naturgesch. lxxviii, Abt. A, Heft 2, 1912, p. 92.

Slightly convex, black, shining; prothorax and elytra brownish-yellow, subnitid: prothorax sparsely punctate, with three longitudinal impressions; elytra very closely punctate, each elytron with four shining costæ.

Closely resembles *L. costipennis* Kirsch (Caucasus), but somewhat broader, upper side more convex and more matt, elytral costæ stronger and the prothorax differently built. The latter is broadest in the middle, and from there more narrowed posteriorly than towards the front; the lateral impressions of the pronotum are broad and deep, and hardly separated from the smaller, longitudinal and almost obsolescent middle impression. The elytra are coarsely wrinkled and punctate, the costæ being smooth and shining and almost as strong as those of *Galeruca sexcostata*, only the third is distinctly weaker, and somewhat abbreviated in front and behind.

In the *male* the first three segments of the tarsi of the front and middle legs are dilated, provided with a felt cushion underneath, and with a single bristle; the sole of the hind tarsus is provided with a row of bristles along the sides. Claws simple.

Length, 8·5 mm.

Distribution. KASHMIR: Khalatse, 15,000 ft.

Type location unknown to me.

I have not seen the type. The above description is adapted from Weise's original in Latin and German.

The resemblance of this species to *Galeruca sexcostata* should be noted, but the claw-structure is totally different in the two species.

SECTION II. (All claws not of the same character or different in the sexes.)

This section contains two genera.

Genus **DORYSCUS** Jacoby.

Doryscus Jac., Proc. Zool. Soc. Lond. 1887, p. 115; Ann. Mus. Civ. Genova, xxxvi, 1896, p. 498; Ann. Soc. Ent. Belg. xl, 1896, p. 300.

GENOTYPE, *Doryscus testaceus* Jac.

This is a monotypic genus.

Body oblong, parallel-sided.

Head exserted. Eyes convex. Antenna slightly shorter (about 1 mm.) than the body; first segment longest;

second very small; third about twice the length of the second. *Prothorax* quadrate, with the base deeply constricted, margins all round bearing long erect hairs, but the upper surface hairless. *Elytra* much broader at base than the prothorax; costate and punctato-striate; upper surface covered with fairly long, fine, erect hairs. *Underside* less thickly covered with hairs than the upper, the hairs also being finer; the legs covered with hairs as those of the upper

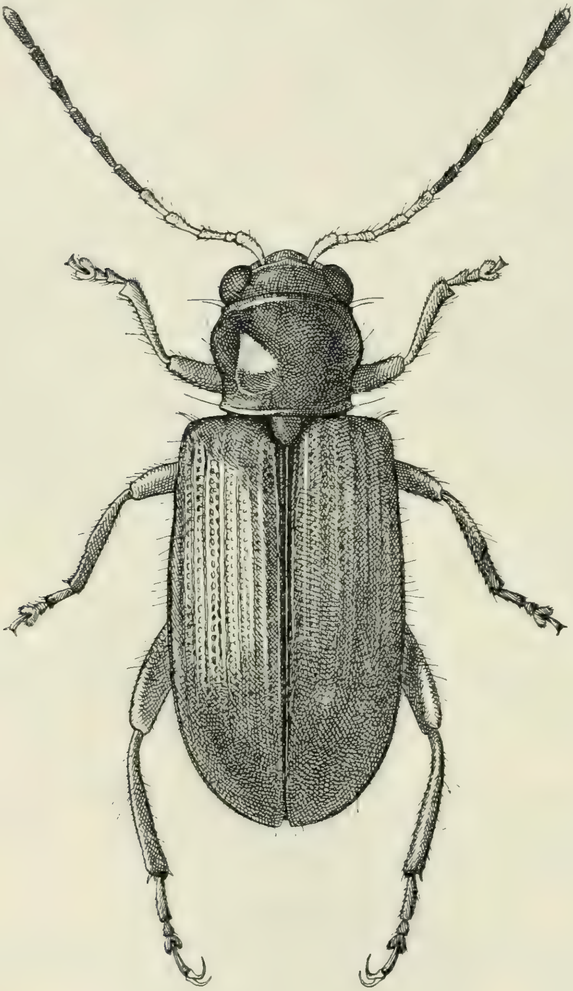

Fig. 23.—*Doryscus testaceus* Jac.

side. Elytral epipleuron narrow. Hind legs longer and stouter than either the front or the middle legs ; hind tibiæ with strong bristles or spines at the apex ; first segment of the hind tarsus equal to the following two in length ; hind claws large, curved, unequal and connate from base to apex, the segment bearing the claws very long ; front and middle claws smaller, divaricate, and each with a sharp tooth at the base on its underside.

Distribution. SOUTH INDIA. CEYLON. SUMATRA. PHILIPPINE ISLANDS. INDO-CHINA.

3. **Doryscus testaceus** Jacoby.

Doryscus testaceus Jac., Proc. Zool. Soc. Lond. 1887, p. 115 ; id., Ann. Mus. Civ. Genova, xxxvi, 1896, p. 498 ; id., Ann. Soc. Ent. Belg. xl, 1896, p. 300.

General colour brown, with the suture and elytral margins all round pitch-black ; apical segments of antenna very slightly darker than the general colour of the body. In some cases the sutural and marginal colour absent.

Head with the vertex smooth, impunctate, but bearing a few scattered erect hairs ; frontal tubercles not prominent. Fourth segment of antenna somewhat longer than the third ; fifth to eleventh segments nearly equal to one another. *Prothorax* anterior to the constriction of the base, the margin on each side convex ; upper surface convex, smooth and impunctate, but the convexity is not uniform, there being irregularities. *Scutellum* subpentagonal, with the apex rounded and the surface smooth, impunctate. *Elytra* : on each elytron there are eleven ribs and twenty-one rows of punctures, including a short scutellar one ; the latter are in pairs between a pair of ribs ; the rows of punctures and the ribs converge towards the apex, so that on the extreme apical area they are not distinct. The first rib, anastomosing with the suture, includes the short scutellar row. The last two rows anastomose towards the apex. In certain lights the ribs appear to be more flattened on the central area than on the lateral, but the last is always stronger and sharper than others. *Underside* smooth, shining and finely punctate. In the male there is a round depression on the last visible ventral segment.

Length, 4–4·5 mm., antenna 3·5 mm. ; *breadth*, 2·5 mm.

Distribution. CEYLON : first described from G. Lewis's collection ; Kandy, vi. 1908 (*G. E. Bryant*). SOUTH INDIA : Nilgiri Hills (*G. F. Hampson*) ; North Salem, Ayur and Coorg, Fraserpet (Sandal Insect Survey). BOMBAY : Kanara (Andrewes Coll.). TONKING : Hoa-Binh.

Type in the British Museum.

Doryscus testaceus occurs in Ceylon and in the Philippine Islands. It has also been taken in intermediate localities, namely, South India and Tonking. The fauna of Ceylon has elements common to it and to the Malayan and Indo-Malayan region, and the occurrence of a Ceylonese insect in India on the one hand and Indo-China on the other can be explained by supposing that species have spread from the two island centres, Ceylon and the Philippines, to the continent, where it has established itself. Conversely, species that occur in northern India might spread along the Himalayan ranges towards the east as far as the Pacific coast.

Genus **APOPHYLIA** Duponchel & Chevrolat.

Apophylia Duponchel & Chevrolat, in d'Orbigny, Dict. Univ. Hist. Nat. ii, 1842, p. 31; J. Thomson, Arch. Ent. ii, 1858, p. 221; Allard, Bull. Soc. Ent. Belg. xxxiii, 1889, p. lxxi; Jacoby, Trans. Ent. Soc. Lond. 1903, p. 22; Weise, Deutsche Ent. Zeitschr. 1896, p. 296; id., Archiv f. Naturgesch. lxxiii, Bd. 1, 1907, p. 217; Laboissière, Bull. Soc. Ent. Fr., 1919, p. 265; Rev. Zool. Afric. x, 1922, p. 148; nec *Apophylia* Chapuis, Gen. Col. xi, p. 183.

Galerucesthis Weise, Deutsche Ent. Zeitschr. 1896, p. 296.

Glyptolus Jacoby, Notes Leyd. Mus. vi, 1884, p. 62, and ix, 1887, p. 243; Ann. Mus. Civ. Genova, xxvii, 1889, p. 216; Baly, Ent. Monthly Mag. xxiii, 1887, p. 268; Allard, Ann. Soc. Ent. France, lvii, 1888 (89), p. 331.

Malaxia Fairmaire, Ann. Soc. Ent. France, xlvii, 1878, p. 139; Allard, Ann. Soc. Ent. France, lvii, 1888 (89), p. 331; id., Bull. Soc. Ent. Belg. xxxiii, 1889, p. lxxx; Baly, Ent. Monthly Mag. xxiii, 1887, p. 268; Trans. Ent. Soc. Lond. 1889, p. 309; Weise, Deutsche Ent. Zeitschr. 1896, p. 296.

GENOTYPE, *Apophylia chloroptera* Thomson (Africa).

The characterization of this genus in d'Orbigny's 'Dictionnaire' is signed by Duponchel and Chevrolat. Among the species enumerated there *chloroptera* of Dejean is mentioned, and this species was first described by Thomson.

Body oblong, parallel-sided, generally of a slender build, elytra usually of metallic green or blue colour and clothed with fine pubescence.

Head as broad as the prothorax; interantennal carina well developed. Eyes convex. Antenna slender, extending beyond the middle of the elytron, sometimes reaching the apex; the second segment always small; the following variable in their proportional lengths. In the male the antennæ are longer than in the female. *Prothorax* always much broader than long, somewhat narrowed behind; sides rounded but with a fine margin; front margin very widely concave; hind margin almost straight; each of the four corners bearing a fine seta arising out of a raised pore; upper surface always with depressions. *Scutellum* triangular, with the apex rounded. *Elytra* broader at the base than the prothorax; very closely punctate, so that a rugose appearance is given to the surface of the elytra. *Underside*: legs long, slender, tibia without an apical spine; the first segment of the posterior tarsi longer than the corresponding segment of the other legs and nearly equal to the following three together.

Secondary sexual characters of ♂. (1) The claws are bifid, in the female the claws being appendiculate; (2) the last visible abdominal sternite with a fold on each side, which looks like a slit in dried specimens; (3) sometimes in the male the hind femora are strongly dilated, like those in *Œdemera* or in Halticinæ; (4) in some species in the male the metasternum is produced behind.

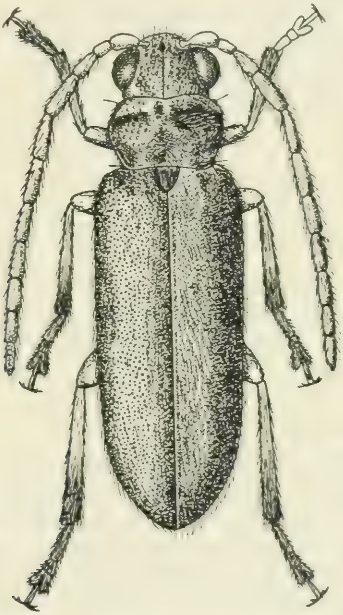

Fig. 24.—*Apophylia assamensis* Jac.

Distribution. Africa. India. Burma. Sumatra. China.

Key to the Species.

1.	Insects of large build, not less than 7 × 3 mm.; elytra greenish-blue or bluish-green; underside and legs generally brownish or brownish-fuscous	2.
	No such combination of characters	3.

2. Elytra with the blue tint predominating; head and pronotum brown, with black patches	*A. nila* sp. n., p. 80.
Elytra with the greenish tint predominating; head and pronotum black	*A. æruginosa* (Hope), [p. 81.
3. Elytra golden, sometimes with greenish tint; head black, pronotum reddish-brown, with median black patch; three apical segments of antenna much shorter than others	*A. lebongana* sp. n., [p. 82.
No such combination of characters	4.
4. Insect black; elytra strongly bluish-green; second, third and fourth segments of antenna pitch-brown	*A. nilakrishna* sp. n., [p. 83.
Insects of variable size and colour-pattern, 4 × 2 mm.–7 × 3 mm.; elytra green, with or without tints of other colours; head, antennæ, pronotum, underside and legs brownish, blackish-brown, or with black patches	*sericea*-group.

The *sericea*-group.

Head brown, with a black patch; pronotum brown, with a median black patch	*A. sericea* (Fab.), [p. 84.
Head brown, with a black patch; pronotum brown, with three black patches	*A. crotchi* Jac., [p. 85.
Head and pronotum black	*A. pallipes* Jac., [p. 86.
Head black; pronotum brown; suture with a golden tint	*A. metallica* Jac., [p. 86.
Head and pronotum black; suture with a golden tint	*A. assamensis* Jac., [p. 86.

4. **Apophylia nila** sp. nov.

Elytra metallic greenish-blue, the blue colour predominating; lateral margin of elytron, including the base below the humerus, fairly broadly brownish, apical margin having the elytral colour; elytral hairs yellowish; underside piceous or brown, legs brown, sometimes upper sides of femora and tibiæ piceous; metasternum sometimes black; three or four basal segments of antenna brown, tinted with piceous, remaining segments blackish; head with the underside shining brown and upper side matt brown; collar and a moderately broad median longitudinal stripe black; a median, roughly triangular patch and two lateral patches (one on each side) on pronotum black; lateral patch extending more towards the front, without touching the margin; scutellum black.

Head: punctures on the upper surface large, round, shallow, and each having a distinct centre; covered with longish hairs; frontal tubercles rather flattened. Antenna extending a little beyond the middle of elytron; second segment nearly half of third; fourth longer than third; fifth somewhat shorter than third; sixth equal to fifth; seventh slightly shorter than sixth; eighth, ninth and tenth equal; eleventh longer than ninth and with a long pointed end; from the fourth the segments very thickly covered with longish hairs. *Prothorax*: depression across the middle deep and fairly wide; punctures large and shallow, each having a distinct centre; side below the lateral margin smooth and impunctate; covered with longish hairs. *Scutellum*: surface somewhat wrinkled, punctures indistinct; hairs longish. *Elytra*: each hair situated separately, somewhat curved and backwardly directed, more crowded and longer on the extreme apical area; a fine longitudinal ridge along the lighter marginal stripe. *Underside*: hair-covering on the metasternum and legs thicker than on the abdominal sternites.

Length, 8 mm.; *breadth*, 3 mm.

Distribution. NILGIRI HILLS (*G. F. Hampson*).

Type in the British Museum.

Described from three examples.

5. **Apophylia æruginosa** (Hope).

Auchenia æruginosa Hope, in Gray, Zool. Miscell. 1831, p. 29.

Elytra metallic bluish-green, lateral margin of elytron narrowly golden but sometimes appears deep blue; underside, head, prothorax and scutellum black; epipleuron black with a steel-blue tint; legs brown, with the apical one-third of each tibia and tarsus piceous; the basal segment, sometimes three basal segments, of antenna brown, the remaining segments blackish.

Head: upper side with large shallow punctures, covered with longish hairs, each puncture having a distinct centre; frontal tubercles rather prominent, smooth, shining. Antenna fairly long, extending almost to the apical area of the elytron; second segment less than half of third; fourth somewhat longer than third; fifth nearly equal to third; sixth nearly equal to fifth; seventh slightly shorter than sixth; eighth slightly shorter than seventh; ninth slightly shorter than eighth; ninth, tenth and eleventh nearly equal, the last pointed at the apex. There is a slight variation in the relative lengths of the segments of the antennæ in the sexes. *Prothorax*: a wide longitudinal median impressed line; on each side the depressed area fairly large; completely and closely covered with punctures and hairs, which are more crowded in the depressed areas. *Scutellum*: surface sometimes slightly convex, finely punctate, covered with longish hairs. *Elytra*: the hairs shorter, situated singly, backwardly directed, much longer on the extreme apical area. *Underside* very thinly covered with fine hairs.

Length of type-example (Nepal), 7 mm.; *breadth*, 2·75 mm.

Length of a larger example (Manipur), 8·75 mm.; *breadth,* 4 mm.

Distribution. NEPAL. MANIPUR (*Doherty*).

Type in the British Museum.

6. **Apophylia lebongana** sp. nov.

Elytra golden, with a greenish tint, in some specimens the greenish tint predominates, with a golden suffusion along the suture; underside, legs, head and antennæ piceous to black; in some aspects underside with a bluish tint; pronotum reddish-brown, with a median longitudinal obsolescent blackish patch; scutellum black.

Head: upper surface flattish, very closely punctate, covered with hairs; frontal tubercles fairly prominent, smooth, shining. Antenna extending to about the middle of elytron; second segment somewhat less than half of third; from third to apex the structure of the segments differs in the sexes; in male each of the third to seventh segments narrowed at base and widened at apex, funnel-shaped; third and fourth equal; fifth thick and much shorter than fourth; fifth and sixth equal; seventh shorter than sixth; eighth cylindrical and shorter than seventh; ninth expanded inwardly on the underside; tenth much smaller than ninth, but with modified under surface; eleventh longer than tenth, pointed at apex, and also with modified under surface; in female third and fourth almost equal, but latter more thickened towards the apex; fifth thick and shorter than fourth; sixth almost equal to fifth; seventh shorter than sixth; eighth cylindrical, slightly shorter than seventh; ninth also cylindrical, shorter than eighth; tenth shorter than ninth; eleventh longer and pointed at the apex; the funnel-shaped structure of third to seventh not so pronounced as in male. *Scutellum*: surface somewhat convex, closely punctate and covered with fine hairs. *Elytra*: hairs stand out singly, stiff-looking, curved, backwardly directed, on the apical margin thicker and longer. *Underside*: tibiæ in some aspects appear laterally flattened; hairs longer and finer, not very sparsely distributed.

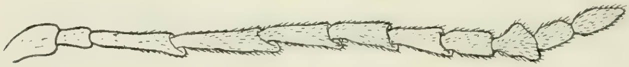

Fig. 25.—*Apophylia lebongana* sp. nov. Antenna of ♂.

Length, 5·75 mm.; *breadth*, 2·75 mm Males very slightly shorter.

Distribution. DARJEELING: Phoobesring, 5,000 ft., x. 1910 (*Partridge*); Lebong, vi. 1909 (*H. M. Lefroy*).

Type in the British Museum, *paratypes* in the Pusa Agricultural Institute.

Described from seven examples.

7. **Apophylia nilakrishna** sp. nov.

Elytra green, with slight golden reflections which are always present on the humerus but variable in other parts; underside, legs, head, prothorax and scutellum black; seven apical segments of antenna black; first segment piceous; second brownish; third and fourth brownish at base and piceous at apex.

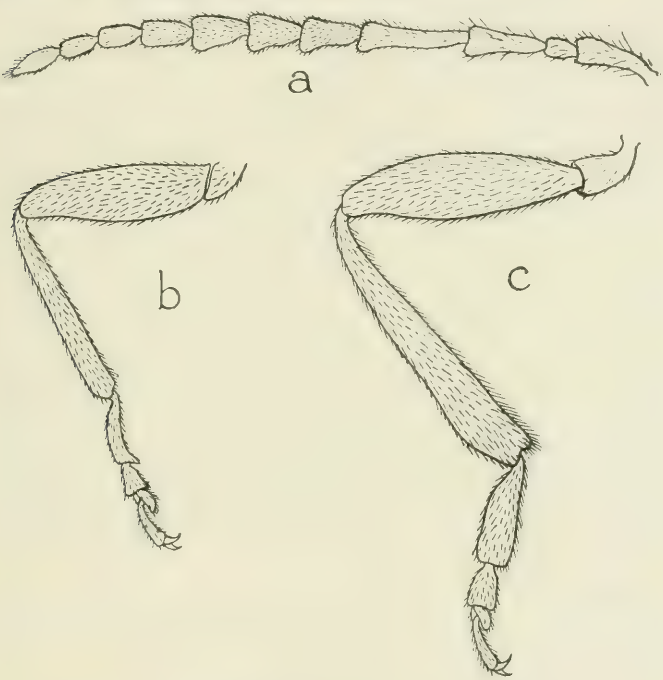

Fig. 26.—*Apophylia nilakrishna* sp. nov. *a*, antenna of ♂; *b*, front leg of ♂; *c*, hind leg of ♂.

Head: upper surface closely punctate, the punctures being shallow; frontal tubercles smooth, shining, with wide excavation between them, which is continued backwards as an impressed median line. Antenna extending to the middle of elytron; first segment smooth, hairless; second less than half of third; in male third and fourth elongate, funnel-shaped, third shorter than fourth; fifth to seventh dorso-ventrally flattened, fifth only half length of fourth; sixth very slightly longer than fifth; seventh very slightly shorter than fifth; first to seventh broadened, and with the upper surface somewhat shining; eighth to eleventh matt, eighth thinner and cylindrical, somewhat concave on the under surface; ninth thinner and shorter than eighth; tenth nearly equal to ninth; eleventh longer and thinner, with the apex pointed; in female the funnel-shaped structure of third and fourth segments much less pronounced, fourth much longer than third; fifth nearly half of fourth, fifth and sixth nearly equal; seventh very slightly shorter than sixth, fifth to seventh not dilated as in male; eighth cylindrical and thinner than seventh; ninth thinner and shorter than eighth; tenth slightly smaller than ninth; eleventh thinner and longer, with the apex pointed. *Prothorax*: a median longitudinal, fairly broad impression on each side of the depressed area deep, surface closely punctate, the punctures rather small; covered with longish hairs, more densely in the depressions. *Scutellum* small, finely punctate and covered with longish hairs. *Elytra*: more hairs on the lateral and apical areas than on the central area, hairs stand singly and are backwardly directed; a fine ridge along the extreme lateral margin. *Underside*: fairly thickly covered with fine longish hairs; in male hind tibia and tarsus considerably dilated, first segment of hind tarsus broader and longer than the following segments together, and also much larger than the corresponding segment of the other tarsi; in female first segment longer than all the following segments together, and longer than the corresponding segment of the other tarsi; in male and female the front leg shorter than either the middle or hind leg.

Length, 7·5 mm.; *breadth*, 3 mm.

Distribution. WESTERN HIMALAYAS: Gori Valley, 11,500 ft. (*H. G. Champion*).

Type in the British Museum.

Described from forty-eight examples.

8. **Apophylia sericea** (Fabricius).

Cantharis sericea Fab., Suppl. Ent. Syst. 1798, p. 69.
Galleruca sericea Fab., l. c. p. 95; Syst. El. i, 1801, p. 485.

Fabricius described this species from examples in the Daldorf collection (Mus. D. Lund) which were taken in Tranquebar, on the east coast. Antennæ testaceous, with the apex black; head testaceous, with a large median black patch; thorax testaceous, with three black patches; elytra covered with silky hairs, green and immaculate; body underneath black, legs testaceous.

In describing *sericea* under *Galleruca* Fabricius was dealing with a variety of the same species in which the black colour is somewhat diluted.

Although I have not seen Fabricius's type, in view of the fact that I have before me more than one hundred examples from various localities in India and Burma I feel certain that we are dealing with one species which varies considerably in colour and size but not much in structure. Therefore all the other species that have been described later have been treated by me as varieties, as shown in the Key.

Head: upper side very closely punctate, covered with longish hairs, a median longitudinal line, sometimes slightly depressed in the middle. Antenna extending a little beyond the middle of elytron; in male long hairs hang down from the underside; third segment much shorter than fourth; fifth shorter than fourth; fifth to eighth nearly equal to one another; ninth shorter than eighth; ninth to eleventh equal, somewhat thinner, eleventh pointed. *Prothorax* completely covered with fairly large punctures and longish hairs; the depressions along the median line and on each side vary in depth, but not to a great extent. *Scutellum* small, punctate and covered with longish hairs. *Elytra* covered with longish hairs, each situated singly and backwardly directed. *Underside* sparsely covered with fine hairs.

Colour variation. There are two main types of colour: elytra green, with various tints of blue, golden, or purple; and the rest of the body brown or piceous. The different brown parts show various permutations and combinations of piceous and black. The intensity of the black also varies. The apical segments of antennæ and tarsi are almost always piceous or black.

Length, 4–7 mm.; *breadth*, 2–3 mm.

Distribution. BENGAL: Calcutta (*Atkinson*); Sarda (*F. W. Champion*); Champaron (*Mackenzie*); Saran, 27. ix. 1910 (Ind. Mus.); Buxa Duars, v. 1907 (*D. Nowrojee*); Chapra (*Mackenzie*). ASSAM: Sadiya, x. 1922, on paddy, 24. vii. 1920 (Pusa Coll.); Cherrapunji, 18. x. 1920 (*Fletcher*). WESTERN HIMALAYAS: Kangra Valley, 4,500 ft., vii. x. 1899 (*Dudgeon*); Haldwani, Kumaon (*H. G. Champion*); Almora, v. 1919 (*H. G. Champion*). EASTERN HIMALAYAS: Lebong, 5,000 ft., ix. 1908 (*H. M. Lefroy*); Mungphu (*Atkinson*).

Apophylia crotchi Jacoby.

Galerucella crotchi Jac., Proc. Zool. Soc. Lond. 1887, p. 107.
Malaxia orientalis Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 129.

Length, 6 mm.; *breadth*, 2–5 mm.

Distribution. BENGAL. SOUTH INDIA: Malabar; also from the Nilgiris. CEYLON.

Type of *crotchi* (Ceylon) in the British Museum.

Type of *orientalis* (Bengal, Mandar, *Père Cardon*) in the British Museum.

I have seen both types, and they are the same variety.

Apophylia pallipes Jacoby.

Malaxia pallipes Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 969.

Length, 5·5 mm. ; *breadth*, 2 mm.

Distribution. BURMA : Karen Hills (*Fea*). ASSAM (*Doherty*).

Type in the British Museum.

Apophylia metallica Jacoby.

Apophylia (*Malaxia*) *metallica* Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 397.

Length, 5 mm. ; *breadth*, 2 mm.

Distribution. KHASI HILLS. NILGIRI HILLS. CEYLON.

Type in the British Museum.

Apophylia assamensis Jacoby.

Malaxia assamensis Jac. Entomologist, xxiv, Suppl. 1891, p. 34 ; id., Ann. Mus. Civ. Genova, xxxii, 1892, p. 968.

Length, 5 mm. ; *breadth*, 2 mm.

Distribution. ASSAM. BURMA.

Type in the British Museum.

Localities of recent collections : Pusa, 26. ix. 1915, 6. x.1915, 13. xii. 1915 ; 14. vii. 1920, feeding on leaves of *Cordia myxa* Linn. (Boraginaceæ), of which the fruit is edible, and was formerly used in medicine ; 23. viii. 1924, on *canna* leaves (*Fletcher*).

SECTION III. (All claws bifid.)

Key to the Genera.

1.	Elytra without a clothing of hairs *	2.
	Elytra with a clothing of hairs	11.
2.	Elytra roughly punctate or variolose ..	3.
	Elytra smoothly punctate	5.
3.	Oblong, somewhat elongate, dull brown, elytral sculpturing rough, but not variolose	LEPTOXENA Baly, p. 89.

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* In this category are not included cases in which a tuft of hairs occurs on the shoulders as a male secondary sexual character or a few scattered hairs on the marginal or apical areas of elytron.

Short, broad, sombre or black, elytral sculpturing variolose, elytra often abbreviated .... 4.

4. Elytral punctures coalescing to form large pits or shallow cavities; elytra without ribs; antennæ comparatively long .... PSEUDADIMONIA Duviv., p. 92.

Elytra distinctly or indistinctly ribbed or flattened; antennæ comparatively short .... GALERUCA Geoffr. & Fourc., p. 97.

5. Body ovate, narrowed in front, broadest in the middle, gradually and uniformly narrowed behind, 7·5–17 × 4·5–10·5 mm. .... OIDES Weber, p. 105.

No such combination of characters .... 6.

6. Body with the apex generally broader than the base, 14–16 × 7–10 mm.; sides of pronotum bisinuate, sometimes sharply, and its surface distinctly punctate .... DORYXENA Baly, p. 121.

No such combination of characters .... 7.

7. Body robust, broadened behind, apical margin not broadened, 10–16·5 × 5–9 mm.; pronotum hardly punctate; elytra generally dark metallic bluish-purple, antennæ in male with extraordinarily swollen segments.... AGETOCERA Hope, p. 125.

No such combination of characters .... 8.

8. Body convex above, somewhat broadened behind, 10–14 × 5·5–8·5 mm.; antennæ fine, long; elytra with alternate brown and dark bands .... MERISTA Chap., p. 141.

No such combination of characters .... 9.

9. Insects narrow, parallel-sided; never more than 9 × 3 mm., generally 7 × 3 mm.; pronotum quadrate, with sides margined .... HOPLASOMA Jac., p. 151.

Insects not parallel-sided, broadened behind, never more than 11 mm. long, usually 6–7 mm.; pronotum broader than long .... 10.

10. Epipleuron abbreviated .... AULACOPHORA Chevr., p. 167.

Epipleuron continued to the apex .... PSEUDOCOPHORA Jac., p. 198.

11. Head, pronotum and elytra brilliant metallic green or a mixture of green, purple and violet .... 12.

No such brilliant coloration .... 13.

12. Body oblong, parallel-sided, 6 × 3 mm.; antennæ as long as the body ...... MIMASTRACELLA Jac., p. 208.

Body constricted behind the shoulders, 8–13 × 5·7 mm.; bright greenish, bluish, purplish colours; antenna much shorter than the body, last four segments smaller than those of the middle .... PERICLITENA Weise, p. 210.

13. Smallish dull brown insects, generally 5 × 2·5 mm., rarely 6·75 × 3·25 mm... 14.

Insect larger, not of uniform dull brown colour .... 15.

14. Elytral punctures deep, large and with intermediate smooth spaces; antennæ comparatively more slender and longer	GALERUCELLA Crotch, [p. 214.
Elytral punctures uniformly distributed, without intermediate smooth spaces; antennæ thicker and shorter	GALERUPIPLA gen. n., [p. 222.
15. Insects large, usually 10 × 5 mm.; parallel-sided; with two colours on the elytra; antenna thickened, with at least some segments flattened	16.
No such combination of characters	17.
16. Elytral punctures coarser; a U-shaped dark apical marking on both elytra	HYMENESIA Clark, p. 224.
Elytral punctures finer; each elytron violaceous-black, with the suture and margins all round brown	CLITENA Baly, p. 228.
17. Prothorax cylindrical, without definite lateral margins; insect of moderate size, 6 × 3 mm.	LUPEROCELLA Jac., [p. 230.
Prothorax not cylindrical; insect of variable size	18.
18. Body oblong, narrowed towards the apex; a longitudinal ridge from the humerus to the apical area; some area on each side of the suture flattened, 5–6·5 × 2·5–3 mm.	DIORHABDA Weise, p. 232.
No such combination of characters	19.
19. Prothorax three times as broad as long; head strongly convex above; 8·5 × 4·5 mm.	BUPHONIDA Baly, p. 237.
No such combination of characters	20.
20. Body broad, 9 × 5 mm.; dull brown; prothorax almost as broad as the base of elytra; elytral punctures fairly large, well-impressed, with irregular spaces between groups of punctures; antenna short, extending a little beyond humerus	MENIPPUS Clark, p. 241.
No such combination of characters	21.
21. Body narrow, parallel-sided; upper side not shining; antennæ long and slender; elytra very closely punctate; 6–7 × 2·5–3 mm., rarely 10 × 5 mm.	ATYSA Baly, p. 243.
No such combination of characters	22.
22. Blackish insects, 7–8·5 × 3–4·25 mm.; upper surface with rugose sculpture and longish hairs	ALAFIA gen. n., p. 251.
No such combination of characters	23.
23. Pronotum with punctures differing from those of the elytra; elytra with the clothing of hairs always more than that of pronotum	SASTRA Baly, p. 254.
Pronotum and elytra equally punctate with the same kind of punctures and hairy to an equal extent	GALEROTELLA gen. n., [p.268.

Genus **LEPTOXENA** Baly.

Leptoxena Baly, Journ. Linn. Soc. Lond. xx, 1888, p. 186.

Genotype, *Leptoxena eximia* Baly.

This is a monotypic genus.

Body oblong, somewhat elongate, parallel-sided. Elytra dull; head, pronotum and underside shining. Scutellum hairy.

Head exserted; broader than the front of the prothorax; vertex strongly convex, impunctate; front flat and with some coarse punctures; a median finely impressed line from the vertex to the apex of clypeus; areas behind the bases of antennæ raised, with well-defined boundaries: clypeus raised, with the upper surface rounded; labrum broader than long, with a few punctures on the surface bearing long hairs and with a slight emargination at the apex; mandibles larger than the labrum; maxillary palpus four-segmented, the two

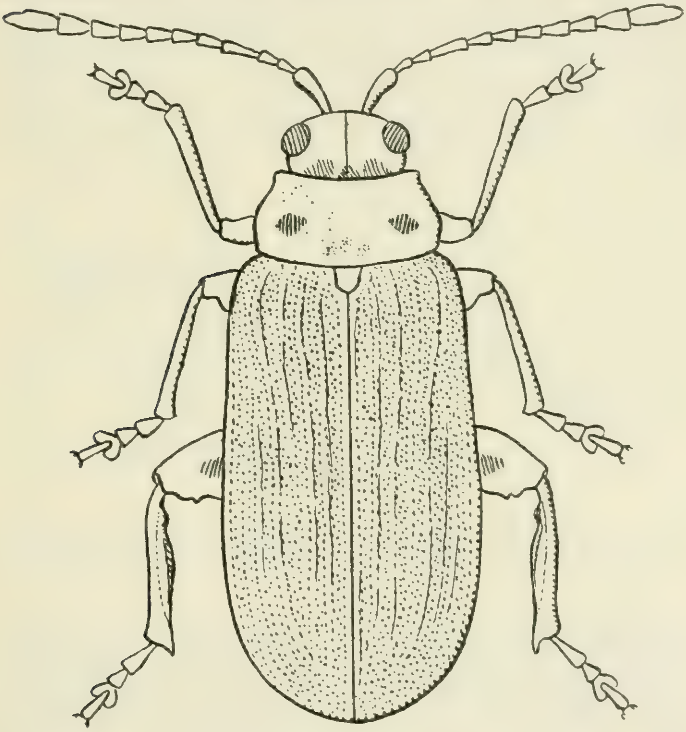

Fig. 27.—*Leptoxena eximia* Baly.

middle segments thickened, the apical small and conical and the basal club-shaped; lacinia well developed; labial palpi three-segmented, the apical segment small and conical. Antenna extending a little beyond the humerus; first segment long, club-shaped; second slightly shorter than third; fourth slightly shorter or almost equal to second and third together; fifth shorter than fourth, but longer than sixth; seventh nearly equal to sixth; eighth, ninth and tenth almost equal to each other; eleventh thinner, not longer than tenth, with the apical conical portion clearly delimited; the three apical segments are cylindrical in the female but modified in the male (see below). Eyes convex, large. *Prothorax* twice as broad as long; seen from above the upper surface slopes down on each side, more so in front; lateral margin sinuate, being somewhat produced in the middle; posterior margin straight, but becoming somewhat oblique

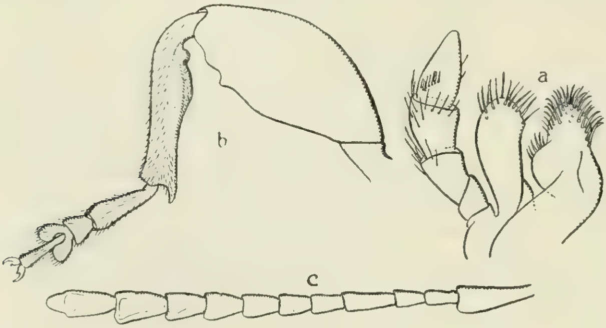

Fig. 28.—*Leptoxena eximia* Baly. *a*, maxilla; *b*, hind leg of male, showing the special structures; *c*, antenna of male, showing the modified underside of three apical segments.

towards the lateral angles; a fine hair at each of the four corners, the anterior hair-bearing pores being more prominent; the upper surface without hairs, smooth, uneven, with ill-defined shallow depressions on the lateral area, sparsely covered with faintly impressed punctures which are closer on the sloping surface than on the middle, which is almost impunctate. *Scutellum* broader at the base than at apex, which is round; longer than broad; surface densely covered with fine hairs and with a shallow depression near the apex. *Elytra* broader at the base than the prothorax; convex above; humerus prominent, rounded; apex rounded; surface closely and coarsely punctate; the punctures are close together and the interstices between them somewhat raised, this gives a rough appearance to the whole surface; suture raised; on each elytron there are eight ill-defined longitudinal costæ, of which three alternate ones are more strongly raised than the others ; on the apical and lateral areas a few fine hairs can be seen under a high magnification. *Underside* covered with fine hairs. Epipleuron not broad, with the edges rounded, abruptly narrowed shortly after the base. Legs not slender ; femora somewhat thickened, in the male the hind femur modified (see below) ; tibiæ bent and rounded towards the base, somewhat broadened towards the apex, modified in the male (see below), completely covered with hair on the underside, on the upper side with a longitudinal ridge along the middle ; first segment of tarsus larger than second, third bilobed ; claw-segment long, projecting much beyond the previous segment ; claws bifid, the inner lobe being very minute.

Secondary sexual characters. (1) In ♂ the vertex of the head is not very convex ; (2) the three apical segments of antenna of ♂ are somewhat flattened towards the base ; on the underside of each is a shallow excavation containing sensory structures ; (3) the last visible sternite with a deep median emargination ; (4) the hind leg is modified as follows : the femur is considerably dilated, but without the internal femoral organ ; it is excavated on the underside near the apex for the reception of the tibia ; the tibia is broad and stout, rounded on the outer surface, channelled on the inner, and with pointed spur at the apex below the articulation with the tarsus ; the first segment of the tarsus is longer and broader than, and the tarsus itself larger than, the corresponding parts of ♀.

Distribution. ANDAMAN ISLANDS.

9. **Leptoxena eximia** Baly.

Leptoxena eximea Baly, l. c. p. 186.

Leptoxena being a monotypic genus the description given above applies to the species, therefore only colour-characters are stated under the species. The name of the species was printed with an "*e*" after the "*m*," which is an obvious error, and is corrected here.

General colour pale brown ; legs and antennæ darker brown ; a round spot on the lateral area on each side of the median line black ; eyes black ; four or five apical segments of antenna blackish ; abdomen blackish.

Length, 9·5 mm. ; *breadth*, 5 mm.

Distribution. ANDAMAN ISLANDS. Collected by many people. Judging from the number of examples it seems to be fairly common.

Type location unknown to me ; but I have no doubt that I have identified the species correctly.

Genus **PSEUDADIMONIA** Duvivier.

Pseudadimonia Duviv., Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. xlvi.

GENOTYPE, *Colaspis variolosa* Hope. Fixed by Duvivier.

Body short, oblong, but slightly broadened behind ; each elytron is separately rounded, so that the elytra are dehiscent at the apex.

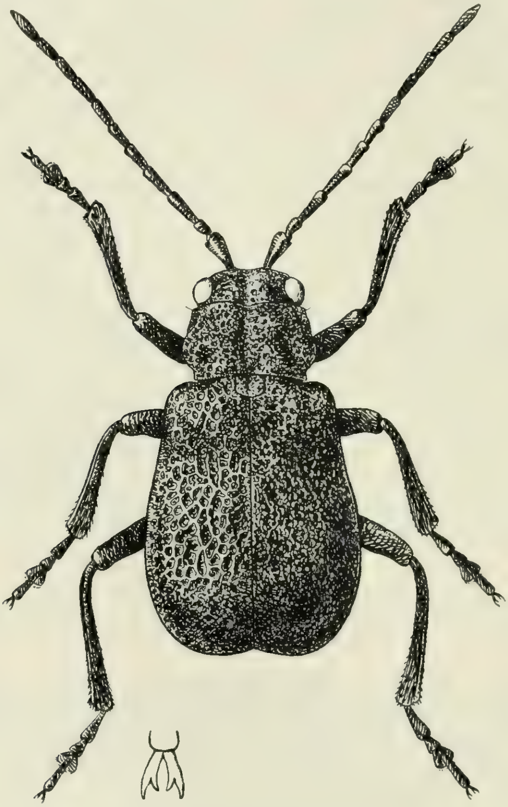

Fig. 29.—*Pseudadimonia variolosa* (Hope), with enlarged drawing of claw.

Head as broad as the prothorax, with the vertex depressed ; upper surface very roughly sculptured, with large and deep pits, often coalescing to form larger cavities. Along the longitudinal median line is a fine impression which is crossed by a transverse line behind the bases of the antennæ and then is continued between them to the clypeus. These impressions lie along the middle of the excavated surface. Areas behind the bases of antennæ raised. Clypeus triangular, raised, smooth and impunctate. Labrum broader than long, emarginate at the apex and provided with long stiff hairs. Mandibles very large as compared with the size of the labrum. Seen from the underside the labium and the two-segmented labial palpi are sunk in the concave underside of the mandibles ; the maxillary palpus is three-segmented, the basal segment being hidden from view by a sharply triangular structure. The mouth-parts are sparsely covered with long stiff hairs. Eyes convex, but compared with the head not very large ; the part on which each eye is placed is slightly raised. Antenna not very fine, reaching almost up to the apex of the elytron, covered with fine hairs more thickly on the apical segments than on the basal ones ; first segment club-shaped, longest ; second shortest ; from third to seventh each segment thicker at the apex than at the base ; third almost equal to fourth ; fifth slightly shorter than fourth ; fifth, sixth and seventh almost equal to each other ; eighth, ninth and tenth cylindrical, almost equal to each other, and each not shorter than seventh ; eleventh, thickening slightly towards the apex, ends abruptly in a sharp point. *Prothorax* somewhat broader than long and narrower than the base of the elytra ; sides irregular in outline ; lateral surface slightly bent down at the sides ; seen from above produced a little after the middle at each side and then abruptly narrowed to the base ; each of the four corners with a little tubercle bearing a fine hair ; upper surface extremely uneven and rugose, large pits coalescing and forming larger and deeper excavations ; along the middle a fine impressed line which is continued on the head ; on each side the surface deeply excavated ; anterior and posterior margins slightly concave in the middle. *Scutellum* broadly triangular, with the apex widely rounded and the surface deeply and irregularly punctate. Sometimes the punctures completely cover the surface, but in other examples large portions are not punctate at all. *Elytra* : sculpturing of the surface very rough and rugose, which is produced by the pits irregularly coalescing. The illustration (fig. 29) shows this character well. One or two erect and fine hairs are visible on the lateral surface and a few more on the apical, but this character is not constant. In spite of the variolose condition of the elytral surface a distinct elevation behind the scutellum, followed by a depression, can be recognized. The lateral and apical margins of the elytra are somewhat explanate. *Underside* thinly covered with fine hairs. Epipleuron concave, broader at the base, narrowing towards the apex ; one half of the concavity rugose, the other half smooth. Legs comparatively long and slender, nearly half of the femur projecting beyond the body; tibia somewhat broadened and more hairy towards the apex, and with a fine rib along the upper surface; first segment of hind tarsus very slightly

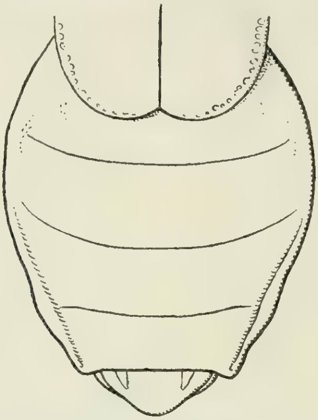

Fig. 30.—*Pseudadimonia variolosa* (Hope) (var.), ♀, showing apex of elytra and the projecting abdomen.

longer than the corresponding segment of either the front or middle tarsus; in all tarsi the first segment is larger than the second; third segment bilobed; claw-segment long; claws bifid.

Distribution. THE HIMALAYAN REGION. ASSAM. BURMA. INDO-CHINA. SIAM. There is one unnamed species in the collection of the British Museum which occurs in New Guinea.

Key to the Species.

1. Insect larger, 7–14·5 × 4·5–7·5 mm.; elytra not flattened, variolose sculpturing coarser .... *P. variolosa* (Hope), p. 94.
2. Insect smaller, 6–7 × 3·5 mm.; elytra flattened, variolose sculpturing less coarse .... *P. debria* sp. n., p. 95.

10. **Pseudadimonia variolosa** (Hope).

Colaspis variolosa Hope, in Gray, Zool. Miscell. 1831, p. 30.
Pseudadimonia variolosa Hope, Duvivier, Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. xlvii.

General colour black, with the upper surface subnitid and with a bronzy sheen, and the underside shining; last visible tergite and sternite of the abdomen brown; parts of the organs of the mouth, two apical segments of antenna, coxæ, a portion of each of the femora towards the apex, small portions on the edges of the tergites and sternites brown. All the portions which may be brown are not so coloured in the same example: some are brown in some examples, while others are brown in other examples, and the distribution of colours among the parts may occur in any combination. The extent and intensity of the brown colour vary.

Secondary sexual dimorphism. In the female the abdomen is much enlarged and projects much beyond the elytra. This character is found in several other genera in the GALERUCINÆ.

Structural variation. The description of the structure given under the genus applies to this species; but the following variations may be noted:—(1) the longitudinal median line and the transverse line which crosses it on the head vary in depth and sometimes are not well defined; (2) the longitudinal median line on the pronotum also varies in its depth and width; (3) the sculpturing on the pronotum and elytra show a great variety in detail, although the general effect is the same.

In the collection of the British Museum there are thirteen examples from Manipur, Assam and Burma, collected by Doherty, which do not show the bronze sheen, but are dull black, although the rugose sculpturing of the upper surface is subnitid. I consider these a variety of *variolosa*.

Length, 7–14·5 mm.; *breadth*, 4·5–7·5 mm.

The larger insects are females, much of the length being the exposed part of the abdomen.

Distribution. NEPAL (type-locality). DARJEELING: Ghumti, 4,000 ft., vii. 1911 (*F. H. Gravely*); Lopchu, 5,000 ft., 21. ix. 1929 (*J. C. M. Gardner*); Lebong 5,000 ft., vii. 1909 (*H. M. Lefroy*); Pashok, 3,000 ft., vi. 1916 (*L. C. Hartless*). ASSAM: Shillong, 4,000 ft., 7. vi. 1918; Cachar (*J. Wood-Mason*); above Tura, Garo Hills, 3,500–3,900 ft., 15. vii.–30. viii. 1917 (*S. Kemp*); Naga Hills; Mishmi Hills, 12,000 ft., 10. vi. 1928 (*Percy Sladen Exped.*); Lohit Valley, 4,000–5,000 ft., 27. xi. 1926 (*F. Kingdon Ward*). MANIPUR (*Doherty*). BURMA: Ruby Mines (*Doherty*); Momeik (*Doherty*); Prome (Brit. Mus.); Pakokko, 1,000 ft., i. iv. 1912 (*E. Colenso*). YUNNAN (Brit. Mus.). SIAM (Brit. Mus.).

Type in the British Museum.

11. **Pseudadimonia debria** sp. nov.

Body small; elytra somewhat flattened, abbreviated; wingless; antennæ slender, long; legs long. General colour pitch-brown; antennæ, tibiæ and apices of femora black; two apical segments of antenna yellow-brown; upper surface with a bright sheen; underside duller than the upper.

Head somewhat constricted at base, with the upper surface depressed and with a longitudinal median impressed line. A certain round area in the middle, more or less delimited, contains a few large and deep punctures on each side of the middle line. Area round the root of each antenna strongly raised ; clypeus triangular, raised on each side, with a slight depression in the middle ; labrum broader than long, small, with a few punctures and a deep median emargination ; mandibles not very large as compared with the size of the labrum. The eyes seem to be more raised than in *variolosa* owing to the neck being more constricted. Antenna long, extending almost to the apex of the elytron ; finer than that of *variolosa* ; the general hair-covering much sparser ; third to seventh segments more nodulate at their apices ; the relative lengths of the segments are similar to those of the previous species. *Prothorax* almost quadrate ; seen from above each side is produced rather strongly, and at each corner the base of the pore which bears a fine hair is strongly raised ; the surface is very uneven, with a shallow median longitudinal excavation containing a finely impressed line, a deep depression on each side of the median line, at the anterior margin a raised area on each side of the median line, at the posterior margin a similar raised area, with scattered deep punctures. All these characters vary to some extent. The anterior margin has a shallow median emargination, giving the border a wavy appearance. The posterior border, which is somewhat narrower than the anterior, has a similar but not so pronounced wavy appearance. At the base the elytra are slightly broader than the prothorax, but owing to the lateral prolongations of the prothorax in general appearance the elytra do not seem to be wider. *Scutellum* wider at the base, rounded at the apex and with the surface excavated. *Elytra* do not cover the whole of the abdomen, leaving at least two apical tergites exposed ; the apex of each elytron is individually rounded, as in *variolosa* ; the upper surface is very uneven, with irregular excavations and elevations ; it is sparsely and confusedly punctate ; one or two short hairs in some punctures on the apical area. *Underside* sparsely covered with fine hairs. Epipleuron narrow at the base, then wider, and again narrowing near the apex, concave throughout, with the surface uneven.

Length, 7 mm., including the length of the projected portion (about 1 mm.) of the abdomen ; *breadth*, 3·5 mm.

Distribution. DARJEELING : Debrepani, 6,000 ft., 18. ix. 1929 (*J. C. M. Gardner*).

Type in the British Museum.

Described from two examples.

Genus **GALERUCA** Geoffroy & Fourcroy.

Galeruca Geoffr.*, Histoire des Insectes, i, 1762, p. 251; Müller, O. F., Fauna Insectorum Fridrichsdalina, 1764, p. xiv; Fourcroy, Entomologica Parisiensis, i, 1785, p. 102.

Genotype, *Chrysomela tanaceti* Linn. This species was designated as the genotype by Latreille in his 'Considérations générales,' Paris, 1810, p. 432.

Body oblong, sometimes slightly broadened behind. General colour dull black or pitch-brown. Antennæ stout and short. Upper surface rugosely punctate. Prothorax almost as broad as the base of the elytra. Elytra generally convex, but often flattish, with longitudinal costæ, and abbreviated, the abdomen projecting beyond the apex. The claws are bifid, but the inner lobe may be very short, arising from the inner side of the larger lobe; it must not be confused with the square projection at the base of the claw, in which case the claw is said to be appendiculate.

Head with the vertex almost flat and the upper surface generally rugose, with a median depression and a median longitudinal impressed line; almost as broad as the pronotum, but sometimes somewhat narrower. Areas round the bases of antennæ not raised. Clypeus triangular, strongly raised in the middle. Labrum broader than long, with a slight emargination in the middle. Mandibles not very large as compared with the size of the labrum. Eyes neither large nor strongly raised. Antenna extending to or a little beyond the humerus, thicker towards the apex, fairly stout as compared with that of *Pseudadimonia*; covered with hairs, which are sometimes strong bristles or small spinules; first segment long, club-shaped; second much smaller than either the first or third; third may be equal to or slightly longer than fourth; fifth shorter than fourth; from the sixth to eleventh the segments are thicker, almost equal to one another except the last, which is longer and pointed at the apex. This structure of the antenna is generally present, but there may be variation in different species. *Prothorax* much broader than long, with the lateral margins irregularly rounded, reflexed, deeper in front than behind, anterior angles somewhat produced in front; anterior and posterior margins irregular, wavy, not straight. Whatever may be the nature of the four corners, each of them bears a fine hair arising from a pore. Upper surface rugose and with depressions. *Scutellum* quadrate, with the apex broadly rounded and the surface roughly punctate; sometimes each puncture contains a fine hair. *Elytra* broad, widened posteriorly. Humerus not prominent and without any depression behind the basal area. Surface always coarsely and closely punctate, sometimes flattish, with longitudinal ribs; in some cases the ribs are more prominent than in others. In some species some of the elytral punctures contain a fine hair, but this is seen with difficulty even under a high magnification and suitable

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* For fuller references see 'Coleopterorum Catalogus' (Junk and Schenkling), pars. 78, 1924, p. 71.

In my previous work in this series (Chrysomelinæ and Halticinæ, London, 1926, p. 418) I remarked that the names proposed by Geoffroy in his 'Histoire des Insectes' are not accepted because he did not employ the binominal method of nomenclature in that work. In 1785 Fourcroy published his 'Entomologica Parisiensis,' in which he latinized many of Geoffroy's names, and these should be accepted. In order not to deprive Geoffroy of the fruits of his labour I have adopted the method of ascribing the authorship of those names that occur in Fourcroy's work to both, for Fourcroy's work essentially consisted in putting Geoffroy's work into the Linnean form.

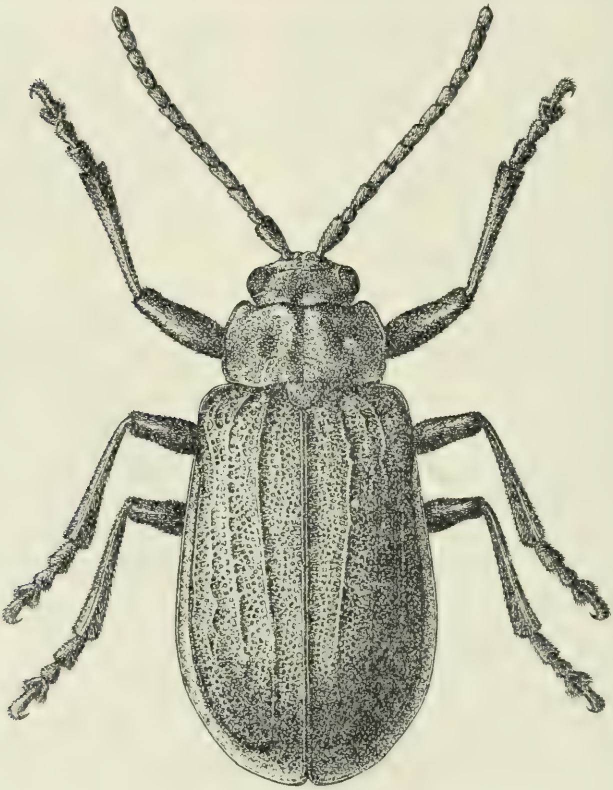

Fig. **31.**—*Galeruca indica* Baly.

lighting. The lateral margins are reflexed throughout, but more so near the base, and in some species are very deeply concave. The apical margins are not reflexed and individually rounded. *Underside* generally more shining than the upper side; sparsely covered with fine hairs. Epipleuron broader at base, narrowing towards the apex, but continued throughout. The legs are not very long as compared with those of *Pseudadimonia*; the tibiæ towards the apex are broadened and more thickly covered with hairs; along the middle of upper surface of each tibia is a fine ridge.

Distribution. Throughout the Old World. Two species have been introduced into the United States of America.

Key to the Species.

1. Pale fuscous; points of articulation between femora and tibiæ, apical portions of tibiæ and two basal segments of tarsi black	*G. tarsalis* Baly, p. 99.
No such combination of characters	2.
2. Ribs or costæ on elytra almost absent or irregular	*G. himalayensis* Jac., [p. 100.
Ribs on elytra prominent and regular ..	3.
3. Three costæ along the middle of each elytron	*G. sexcostata* Jac., p. 102.
Four or more costæ along the middle of each elytron.......................	4.
4. Four costæ strong, prominently raised; the contrast between the colour of costæ and that of the background very marked; elytra flattish	*G. vittatipennis* Baly, [p. 104.
Four costæ weak, not prominently raised; other minor costæ may be present; the colour-contrast between the costæ and the background absent; elytra not flattish	*G. indica* Baly, p. 101.

12. **Galeruca tarsalis** Baly.

Galeruca tarsalis Baly, Cist. Ent. ii, February 1879, p. 452.

Body subelongate, slightly broadened behind. Pale fuscous; eyes, knees, apices of tibiæ and two basal segments of tarsi black; antennæ stained above with piceous.

Head strongly and coarsely punctate. *Prothorax* twice as broad as long; upper surface transversely concave, strongly and coarsely punctate, rugose on the sides. *Elytra* closely but less coarsely punctate than the prothorax.

Length, about 8 mm.

Distribution. ASSAM: Sadiya (*A. W. Chennell*).

Type location unknown to me.

I have not seen the type. The above description is adapted from Baly's description in Latin and English.

13. **Galeruca himalayensis** Jacoby.

Galeruca himalayensis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 283.

Body oblong, broad, slightly broadened behind. Apterous. General colour pitch-brown in the male and black in the female. In the female the abdomen projects considerably beyond the apex of the elytra.

Head with the upper surface flattened, strongly punctate, but not rugose. The median longitudinal impression is much deeper in the male than in the female. Areas behind the bases of antennæ well defined, well raised, impunctate and with a deep longitudinal cleft between them. Antenna hardly extending to the middle of the elytron; second segment nearly half of the third; fourth nearly equal to but less thickened at the apex than the third; the four apical segments are less shiny than the others. *Prothorax* much broader than long, with the sides rounded and the lateral edges serrate. Front margin widely arched towards the base; basal margin in front of the scutellum more strongly arched anteriorly, and still more strongly so in the male than in the female. Upper surface uneven, with a deep excavation on each side of the middle area, which is almost impunctate and smooth; surface along the lateral margins also depressed, more so towards the front; irregularly covered with a mixture of larger and deeper, and smaller punctures, which are crowded in the excavations. In the female the middle smooth area is more depressed than in the male. *Scutellum* much broader than long, with apex slightly emarginate. In the female there are a few (three or four) punctures on the surface, but none in the male. In the female the apical emargination is deeper than in the male, in which it is a slight notch situated not quite in the middle. In the female the apical surface is somewhat depressed, which is not the case in the male. *Elytra*: the sculpturing of the upper surface of the male has a more transversely wrinkled appearance than in the female. In the female the postscutellar area is slightly depressed, and the punctures coalescing have produced irregular longitudinal channels, with the interstices standing out prominently. The postscutellar depressed area is not present in the male. In both sexes the whole surface generally is coarsely punctate, and the punctures running into each other produce larger and smaller pits, so that the sculpturing assumes a rugose appearance. At first sight the interstices appear to form irregular longitudinal ribs. Although there are no regular and well-developed ribs as in the other species, yet in view of their irregular appearance it would not be correct to describe the surface as without costæ. In the male the upper surface is duller than in the female. *Underside*:

in this species the inner lobe of the claws is not very small, but is fairly well developed.

Length, ♀ 10·5 mm., ♂ 7 mm.; *breadth*, ♀ 6 mm., ♂ nearly 5 mm.

Distribution. THE HIMALAYAS: Dalhousie.

Types of ♀ and ♂ in the British Museum.

There are so many differences between the male and the female that it would have been difficult to regard the sexes as belonging to the same species had it not been for the fact that in the collection of the British Museum the two examples collected from the same locality are labelled ♀ and ♂ by Jacoby.

14. **Galeruca indica** Baly.

Galeruca indica Baly, Cist. Ent. ii, September 1878, p. 381; id., Second Yarkand Mission, 1878, p. 34.

Body oblong, slightly broadened behind the middle and again narrowing very slightly. Elytra not flattened as in the other species. General colour blackish or dark pitch-brown, sometimes with the elytral margins lighter.

Head: the punctures, though large and close to each other, are smaller than those on the middle area, which is well defined. Front depressed. Areas behind the bases of the antennæ well defined, slightly raised, covered with coarse punctures, and with a deep cleft between them. Each of these punctures contains a fine hair. Clypeus very sharply and strongly raised. Antenna hardly extending to the humerus; the six apical segments thicker; the four or five apical segments less shiny than the others; second segment about half of the third; fourth nearly equal to third; in the type-example it appears to be somewhat shorter than the third. *Prothorax* much broader than long; anterior corners strongly produced in front, though rounded; sides sinuately rounded, but this character is not constant; the edge of each lateral margin serrate, bearing fine hairs; upper surface uneven, coarsely and closely punctate, with a longitudinal broad depression along the middle and one on each side of it; the depth and extent of these depressions vary considerably. Anterior margin straight between the produced corners; posterior sinuate. *Scutellum* broader than long, with the apex broadly rounded and surface closely punctate, the punctures large, each containing a fine hair. *Elytra* closely, coarsely and confusedly punctate; punctures large, squarish and situated in such a way that they touch each other, but they do not coalesce to form larger pits; suture and reflexed lateral margins raised. On each elytron are four principal costæ, the outermost and the innermost meeting on the apical area, and between these are two others, the outer one of which is obsolescent at its anterior and posterior ends. Besides these principal costæ there are two or three more, as follows: (1) between the suture and the first principal costa; (2) between the first and second principal costæ; (3) between second and third principal costæ, but these secondary costæ are often obsolete; reflexed lateral margins prominent. *Underside* brilliant, much more shining than the upper side. Surface of epipleuron uneven, punctate and sometimes with a longitudinal ridge. Median ridge on the upper surface of each tibia strongly raised. Inner lobe of each claw much smaller than the outer.

Secondary sexual characters. In ♂ last visible sternite with a deep emargination in the middle. In ♀ the abdomen projects beyond the apex of the elytra; but this is variable, in some cases being more and in others less produced.

Length, 8·5–10 mm.; *breadth*, 4·5–6 mm.

Distribution. WESTERN HIMALAYAS: Mussooree, ix.–x. 1917 (*Mackenzie*); viii. 1906 (*Lefroy*); Kasauli, 6,300 ft., 15. v. 1908, "very common among pine-needles on the ground round Kasauli" (*N. Annandale*); Simla, 7,000 ft., 12–13. v. 1913 (*N. Annandale*); Hazara District, Dungagali, 8,000 ft., 21–24. v. 1915 (*Fletcher*); Western Almora, Kumaon (*H. G. Champion*). PUNJAB: Murree Hills, Thobha (*Major Howland Roberts*). ASSAM: Cachar, Sylhet (*Bowring*).

Type in the British Museum.

15. **Galeruca sexcostata** Jacoby.

Galeruca sexcostata Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 405.

Body flattened. Apterous. Subnitid. General colour black, with the elytra often lighter, the black costæ standing out prominently; when the ground-colour of the elytra is blackish the margins retain the lighter shade; the elytral costæ are never lighter; the scutellum is always black; the pronotum may be completely black or, in some cases, a large central area is black, with the margins assuming the lighter shade; the vertical area of the head is always black, but the elevated areas behind the antennæ and the clypeus are sometimes lighter; the four or five basal segments of antenna often have (even in the strongly melanic examples) the roots dark brown; in some cases the dark brown colour shows signs of spreading over the whole basal segment.

Head with the upper surface with a longitudinal deeply impressed line, which is continuous with the deep cleft between the raised areas behind the bases of the antennæ; covered (but not closely) with deep punctures, each containing a fine hair; sometimes these punctures are obsolete; the middle area, including the depression, shining; the raised areas almost impunctate; clypeus strongly and sharply raised. Antenna extending a little beyond the humerus; the apical segments not thicker; four or five apical segments less shining than the others; third segment broader than but equal in length to fourth. *Prothorax* much broader than long, with the sides irregularly rounded and somewhat produced in the middle; posterior lateral angles very widely rounded; upper surface uneven, with the depression on the lateral area deep; along the longitudinal median surface a shallow depression; sometimes the whole of the middle area and the lateral depression form a large transversely oval depressed area; generally punctate, sparsely in the middle, more thickly in lateral depressions; there is much variation in the punctuation, sometimes there are fine punctures on the central area and sometimes there is a mixture of coarser and finer punctures; lateral depressions less crowded with punctures; pronotum in some examples more shining than the elytra. *Scutellum* broader at the base than at the apex, which is very widely rounded, tending to be almost straight; surface with a depression in the middle, which may be deep or shallow, and with a few punctures. *Elytra* with the sides almost parallel and the apical margin broadly rounded at the outer lateral angles, turning obliquely inwards towards the sutural angles, so that, seen at a certain angle, the apical margins appear to be obliquely straight; on each elytron are three strong longitudinal ribs or costæ; the first, which is next to the suture, begins from a point near the basal margin at one side of the scutellum and continues to the apical area without actually reaching the apex; in some examples it bends outwards, joining the third costa; the second costa, arising just above the humerus, runs along the middle without meeting any other costa, so that it is always shorter than either the first or second, its apex always remaining free; the third costa, arising behind the humerus, runs parallel to the other costæ, reaching the apical area; its apex either remains free or, bending inwards, joins the first costa. The surface is closely, coarsely and confusedly punctate, the formation of the punctures not suggesting a trace of any other minor costæ. Lateral margins reflexed, broad, and the suture and lateral edges costate. *Underside*: the median ridge along each tibia prominently raised; each tarsus large, almost half the length of the tibia; inner lobe of claw much smaller than the outer lobe.

Length, 7–10 mm.; *breadth*, 4·5–5 mm.

In those examples in which the abdomen projects considerably beyond the apex of the elytra the length would be much greater, but the breadth would not be more.

Distribution. KASHMIR: Lidder, 1,100 ft. (type-locality); Srinagar, June 1923 (*Fletcher*); Burzil-chauki, 11,700 ft., 25. vii. and 24. viii. 1925 (*Col. Meinertzhagen*). PUNJAB: Lahore (*Mrs. Mulvany*).

16. **Galeruca vittatipennis** Baly.

Galeruca vittatipennis Baly, Cist. Ent. ii, September 1878, p. 380; id., Second Yarkand Mission, 1878, p. 33.

Body oblong, flattish. Underside, head, antennæ, prothorax, scutellum, suture and elytral costæ black; elytra brown; basal portions of the first five or six segments of antenna with red-brown tint; in some examples the red-brown colour has spread over the whole of the underside of the second segment; some parts of the oral region also red-brown. In the type-example the front of head red. Head, pronotum and scutellum sparsely covered with fine hairs.

Head with the median longitudinal impression continuous with the deep cleft between the raised areas behind the bases of antennæ; upper surface covered with deep and large punctures; behind each eye the surface rugose; the raised areas behind the bases of antennæ in some cases almost impunctate or with a few fine punctures, while in others they have one or two large punctures; clypeus strongly raised and covered with fine hairs. Antenna extending a little beyond the humerus; second segment about half of the third; fourth slightly shorter than third; four apical segments less shining than the others. *Prothorax* much broader than long, with the sides rounded, the middle portion being slightly produced; edges of the lateral margins serrate; upper surface uneven, with a fairly large depression on each side, two along the longitudinal middle area, the latter depressions varying in depth; in some examples the lateral reflexed margin very deep; whole surface closely and confusedly covered with large punctures; basal margin slightly sinuate. *Scutellum* broad, with the apex broadly rounded, surface depressed near the apex and covered with coarse punctures, in some cases the punctuation not very close. *Elytra*: suture strongly raised, and on each elytron there are four strongly raised, fairly broad costæ disposed as follows:—The first, arising from a point near the base at one side of the scutellum, runs parallel to the suture reaching the apical area, where it turns outwards and, joining with the fourth costa, forms a rounded curve; the second costa arises from a point above the humerus; the third behind and the fourth below the humerus; the second and third meet on the apical area; the third costa is often obsolete at the base, and sometimes its junction with the costa is also interrupted. The surface between the costæ is covered with punctures, which have a tendency to form rows. Along the marginal area the punctures contain some fine hairs. *Underside*: the epipleuron narrows only very slightly towards the apex, its surface impunctate; hairs on the tibiæ stiff and some of them becoming spinules; at the apex of each tibia the spinules larger and well formed; inner lobe of claw very minute, but its existence can be recognized.

Length, 9–9·5 mm.; *breadth*, 5–5·7 mm.

Distribution. THE PAMIRS: on the road across the Pamirs, from Sirikol to Panga.

Type in the British Museum.

Genus **OIDES** Weber.

Oides Weber, Obs. Ent. 1801, p. 26; Blackburn, Trans. Roy. Soc. S. Austr. xx, 1896, p. 79; Weise, Archiv f. Naturgesch. lxviii, Band 1, 1902, p. 136; Laboissière, Ann. Soc. Ent. France, xc (1921) 1922, p. 194.

Adorium Fab., Syst. Eleuth. i, 1801, p. 409; Latrielle, in Cuvier's Règne Anim. ed. 2, v, 1829, p. 152; Duponchel, Dict. Univ. Hist. Nat. (original edition) i, 1841, p. 134; Blanchard, Voy. Pôle Sud., Zool. iv, 1853, p. 334; Boheman, 'Eugenies' resa, Col. 1859, p. 157; Chapuis, Gen. Col. xi, 1875, p. 156.

Boisduvalia (*Boisduvallia*), Montr., Ann. Soc. Agr. Lyon, vii, 1855, p. 72.

Rhombopalpa Clark, Ann. Mag. Nat. Hist. (3) xv, 1865, p. 143.

Botanoctona Fairmaire, Journ. Mus. Godeffr. Band v, Heft 14, 1879, p. 113; Weise, Archiv f. Naturgesch. lxviii, Band 1, 1902, p. 136.

GENOTYPE, *Chrysomela bipunctata* Fab. Fixed by Weber.

Body oblong-ovate, convex, narrowed anteriorly and posteriorly.

Head narrower than the pronotum, with the interocular space often depressed. Antenna fairly long, sometimes extending beyond the middle of the elytron; first segment long, club-shaped; second usually shorter than first or third, but not always so; latter shorter than or nearly equal to fourth; following segments subequal to each other; last bluntly pointed. *Prothorax* always broader than long; within certain narrow limits the shape varies; anterior angles somewhat produced, sometimes pronouncedly so, each angle bearing a fine seta; posterior angles broadly rounded; sides rounded; upper surface convex from side to side. *Scutellum* triangular, with apex broadly rounded. *Elytra* broader at base than the prothorax, sometimes not distinctly so; humerus sometimes prominent and rounded, the lateral margins sometimes explanate, apical margin projecting beyond the abdomen; confusedly punctate, the punctures sometimes very fine and sometimes strong; chitinization of the elytra often thin; often of uniform colour, but sometimes there are large patches or spots without forming an intricate pattern; without hairs. *Underside*: legs fairly strong, with the upper surface of the tibiæ ridged, and always covered on the underside with stiff hairs; first segment of tarsi broad and equal in length to the following two; claw-segment long, with the claws bifid.

Secondary sexual characters. In ♂ (1) the first segment of the tarsi of the front and middle legs is more dilated than the corresponding segment of the hind legs; (2) the apex of the last visible abdominal sternite is strongly and obliquely cut away on each side. Both the secondary male characters may be present in one species, or only one character may be present.

Distribution. ASIA. AFRICA.

Key to the Species.

1. Elytra with black spots or patches .... 2.
   Elytra without black spots or patches, at most with an obsolescent brownish spot on each elytron .... 6.
2. Each elytron with one small or large patch.............................. 3.
   Each elytron with more than one patch.. 4.
3. Insect of large build, length 10 to 14·5 mm., not shining, elytral patch varying from a small oval spot to a large patch covering almost the entire elytral surface........................... *O. bipunctata* (Fab.), [p. 107.
   Insect of small build, always less than 10 mm. in length, very shining, elytral patch fairly constant, covering about four-fifths of the surface.............. *O. affinis* Jac., p. 109.
4. Each elytron with two small round patches; pronotum without spots .... *O. bengalensis* sp. n., [p. 110.
   Each elytron with more than two patches; pronotum with a pair of black spots.... 5.
5. The sides of the elytra attain an extraordinary expansion beyond the epipleura (see underside); scutellum not black............................. *O. coccinelloides* [Gahan, p. 110.
   Elytral sides with no such expansion; scutellum black .... *O. maculosa* Gahan, [p. 112.
6. The sides of the elytra attain an extraordinary expansion beyond the epipleura (see underside) .... *O. maculata* (Oliv.), [p. 113.
   Elytral sides without such expansion .... 7.
7. Elytral surface with a mixture of deeper and scattered punctures, and apparently finer and closer ones .... 8.
   Elytra uniformly punctate, with one kind of punctures (generally fine) .... 9.
8. Viewed from above head black and pronotum without black spots .... *O. pectoralis* (Clark), [p. 114.
   Viewed from above head not black and pronotum with two pairs of round spots *O. semipunctata* Duviv., [p. 116.
9. Front margin of pronotum not deeply concave; insect narrowly oblong-ovate, length 7·5–10·5 mm. .... *O. flava* (Oliv.), p. 118.

	Front margin of pronotum deeply concave, insect of broader and of larger build, always larger than *flava* (Oliv.) . .	10.
10.	Anterior lateral angles of pronotum acute; scutellum and suture piceous	*O. scutellata* (Hope), [p. 119.
	Anterior lateral angles of pronotum rounded; scutellum and suture not piceous; sometimes each elytron has an obsolescent brownish spot on the lateral area about the middle	*O. innocua* Gahan, [p. 120.

17. **Oides bipunctata** (Fabricius).

Chrysomela bipunctata Fab., Spec. Ins. i, 1781, p. 127; id., Mant. Ins. i, 1787, p. 73; id., Ent. Syst. i, pt. 1, 1792, p. 329; Gmel., ed. Linn. i, pt. 4, 1790, p. 1682.

Adorium bipunctata Fab., Syst. Eleuth. i, 1801, p. 409; Latr., Hist. Nat. xi, 1804, p. 394; id., Gen. Ins. iii, 1807, p. 61, pl. 11, f. 9.

Oides bipunctata Weber, Obs. Ent. 1801, p. 53; Guér., Icon. 1840, t. 49, f. 2; Allard, Ann. Soc. Ent. France, 6 sér. ix, 1889, p. 307; Weise, Tijdschr. Ent. lxv, 1922, p. 56.

Galeruca bipunctata Oliv., Ent. vi, 1808, p. 627, no. 93, pl. 1, f. 5.

General colour brown, with the following parts black or piceous:—Apex of fourth, and fifth to eleventh segments of antenna (except the extreme end of the last); the greater part of all tibiæ; all tarsi; metasternum; abdominal sternites (except the margins); and one large longitudinally

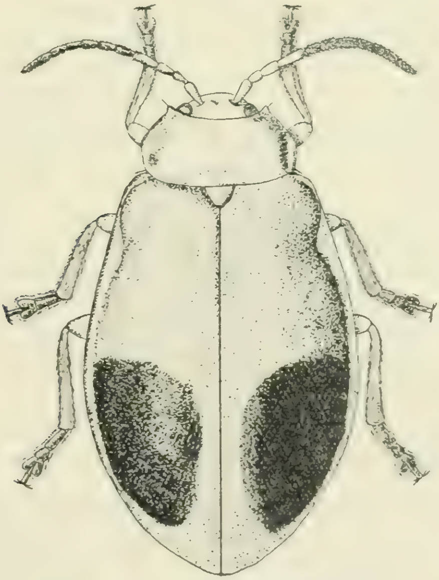

Fig. 32.—*Oides bipunctata* (Fab.).

placed oval patch on each elytron situated behind the middle. This patch is variable ; from a small spot it can attain to a size large enough to occupy about three-fourths of the elytral area, but never extending to the margins. Head, pronotum, scutellum, and sometimes the basal area, together with narrow elytral margins, shining, the rest of the body opaque.

Head broad, with the interocular space slightly depressed in the middle ; interantennal space somewhat elevated. Antenna sparsely pubescent, extending a little beyond the humerus ; third segment shorter than fourth ; the black segments appear to be somewhat thicker, while the last two tend to become thinner. *Prothorax* about twice as broad as long ; sides slightly explanate, very gently rounded, but sharply concave at the anterior lateral angles, each of which bears a fine seta ; widely rounded at the posterior lateral angles, which are continuous with the widely arched posterior margin. Upper surface gently convex from side to side, with ill-defined shallow depressions here and there ; seen under a high magnification sparsely and finely punctate. *Scutellum* triangular, somewhat convex ; seen under a high magnification finely shagreened. *Elytra* broader at base than the prothorax, convex, widest at about the middle and narrowed towards the apex ; humerus convex ; basal area gently convex, which is more easily perceptible when the insect is held at certain angles ; closely and confusedly covered with fine punctures ; lateral margins very slightly explanate. *Underside* covered with fine pubescence ; more shining than the elytral surface ; abdominal sternites transversely and finely striate.

Length, 12–14·5 mm.

Distribution. BOMBAY (Brit. Mus. Coll.). BENGAL : Darjeeling ; Pashok, 1,000 ft., 26. v.–14. vi. 1916 (*F. H. Gravely*). BIHAR : Pusa, 8 & 16. viii. 1913 (*Peries*). ASSAM : Patkai Mts. (*Doherty*) ; above Tura, Garo Hills, 3,500–3,900 ft., 15. vii. 1930 (*S. Kemp*). BURMA : Tatkon, 6 & 7. ix. 1919 (*Fletcher*) ; Pegu (*Atkinson*).

Type in the Banks coll., British Museum.

The specimens from Pusa have a more reddish tint in the general colour and have the elytral black patches much reduced.

In 1927, in the ‘ Annales de la Société Entomologique de France ’ (p. 38), M. Laboissière published a description of a species, to which he gave the name *O. indosinensis*, which is common in Cochin-China. He has recorded that it also occurs in the Khasi Hills, Assam. I have seen two examples of *indosinensis* in the collection of the British Museum, and have carefully studied the characters by which he has separated it from *O. bipunctata* Fab., to which it has a close resemblance. The characters are all relative ; there are variations which seem to be constant within a certain region, and that is what one expects in a species of wide distribution, and I do not think we are justified in making a new species, at least not for our purpose.

Var. **andrewesi** Jacoby.

Oides andrewesi Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 127.

I have carefully examined Jacoby's type, and am of the opinion that it is a variety of *O. bipunctata* (Fab.). Its general colour is much more obscure brown than that of *bipunctata*, and the elytral black patch has spread over the greater part of the surface. Jacoby recognized that it was very close to *bipunctata*, but separated from it by the black underside of *andrewesi*, a character which is not tenable because it occurs also in *bipunctata*. The other character which he has used is the apparently more distinct elytral punctuation ; it only appears so owing to the black background, and is not really so. This is easily observed by examining the punctures on the black portions of the elytra of *O. bipunctata*.

Length, 10–13·5 mm.

Distribution. BURMA : Tharrawaddy (*Andrewes*).

Type in the British Museum.

18. **Oides affinis** Jacoby.

Oides affinis Jac., Proc. Zool. Soc. Lond. 1883, p. 400, pl. xlv, f. 4.

General colour shining brown, with the following parts black or piceous :—Six or seven apical segments of antenna ; tarsi and apical half or three-fourths of the tibiæ ; abdominal sternites except the last visible one ; and a patch covering about three-fourths of the central area of each elytron. The elytral patch is more intensely black than the other parts ; the antennal segments are not uniformly black or piceous, sometimes the apex of a segment is black, sometimes the upper side of the two apical segments are black, the lower side being brownish ; the colour of the tibiæ is much diluted with brown, especially towards the base.

Head with the vertex finely and not very closely punctate, interocular space depressed in the middle, with a fine longitudinal median line, having a flattened elevation on each side of it. Antenna extending to about the middle of the elytron ; third segment longer than second but shorter than fourth ; sixth, seventh and eighth slightly thicker, but this is not a very well-defined character. *Prothorax* about twice as broad as long ; basal margin widely arched and continuous with the sides in a uniformly rounded curve ; anterior lateral angles rounded, without a pore for a fine seta ; upper surface convex from side to side ; fairly closely covered with fine punctures. *Scutellum* triangular, smooth and impunctate. *Elytra* broader at base than the prothorax ; humerus convex ; closely and confusedly punctate ; lateral margins only slightly expanded. *Underside* finely punctate and covered with fine pubescence.

Length, 8 mm.

Distribution. NILGIRI HILLS. TRAVANCORE : Wallardi, 5. ix. 1904 (*R. P. Favré*) ; Trivandrum (*Atkinson*) ; Mahé, Malabar Coast.

Type in the Bowditch Collection, Museum of Comparative Zoology, Harvard University, U.S.A.

19. **Oides bengalensis** sp. nov.

General colour brown ; three apical segments of antenna, two round spots on each elytron and prosternum black. Of the two elytral spots the anterior is situated on the outer area somewhat before the middle and the posterior nearer the suture behind the middle. The diameter of each spot is a little less than 2 millimetres. The pronotum is more shining than the elytra.

Head with the vertex smooth and impunctate ; interocular depression shallow, with a median longitudinal finely impressed line ; interantennal elevations not pronounced and transverse. Antenna extending to about the humerus ; second segment slightly shorter than third ; fourth nearly equal to third. *Prothorax* about twice as broad as long ; anterior margin concave ; anterior angles rounded and the posterior angles obliquely cut away and continued to the widely rounded basal margin ; upper surface smooth, seen under high magnification very sparsely and finely punctate. *Scutellum* triangular, with the apex rounded, smooth, impunctate. *Elytra* broadly ovate, hardly broader at base than the prothorax ; shoulders prominent ; surface closely covered with fine punctures. *Underside* sparsely covered with fine hairs.

Length, 10·5 mm. ; *breadth*, 7·5 mm.

Distribution. BENGAL. On the label attached to the specimen the locality is simply " Bengal."

Type in the British Museum.

Described from one example.

20. **Oides coccinelloides** Gahan.

Oides coccinelloides Gahan, Ann. Mag. Nat. Hist. vii, May 1891, p. 458.

Almost hemispherical in form. General colour yellow-brown, with black spots and patches on the pronotum, elytra and underside arranged as follows :—Each of the pronotal patches situated on the lateral area and elongated, extending from the basal line to near the anterior margin; the elytral patches in three pairs, the first pair being across the basal area, the second across the middle and the third on the apical area; of the first pair the inner, *i. e.*, that nearer the suture, is round and the outer is much broadened, showing indication of being formed by the fusion of two spots; the outer patch of the middle pair is of similar character; the spots of the third or apical pair are almost rounded and smaller. The elytral patches vary considerably in size: in one or two examples before me they are mostly obsolescent. On the underside the mesosternum and metasternum shining black, and a row of five black patches on each side of the abdomen of progressively diminishing size. Three apical segments of antenna fuscous.

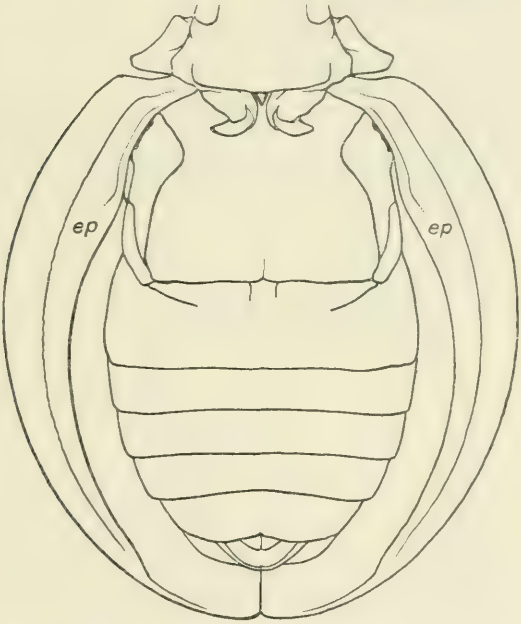

Fig. 33.—*Oides coccinelloides* Gahan, ventral aspect, showing extraordinary lateral expansion; *ep*, epipleuron.

Head with the vertex smooth and impunctate. Antenna hardly reaching the middle of the elytron: third segment nearly equal to fourth. *Prothorax* a little more than twice as broad as its median length; anterior margin strongly concave, basal margin feebly convex, but sides posteriorly strongly convex: anterior angles acute; upper surface very sparsely and minutely punctate and finely shagreened, but this can be seen only under high magnification. *Scutellum* triangular, smooth and impunctate. *Elytra* more strongly and more closely punctate than the pronotum but similarly shagreened. *Underside* covered with fine hairs. The sides of the elytra attain an extraordinary expansion beyond the epipleuron. In this respect this species is most nearly approached by *O. maculata* Oliv.

Length, 10–13 mm.

Distribution. ASSAM (*W. F. Badgley*): Manipur (*Doherty*); Shillong (*Atkinson*). SIKKIM (*Dr. Hooker*) (locality of the type-specimen). DARJEELING.

Type in the British Museum.

21. **Oides maculosa** Gahan.

Oides maculosa Gahan, Ann. Mag. Nat. Hist. vii, May 1891, p. 457.

General colour yellow-brown, with black spots and patches on pronotum and elytra, arranged as follows:—Two fairly large ovate spots on pronotum situated one on each side nearer the basal margin; seven patches on each elytron; two on the basal area placed in a transverse line, the inner

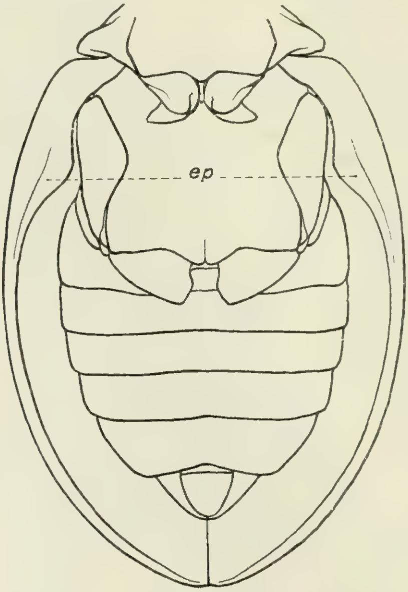

Fig. 34.—*Oides maculosa* Gahan, ventral aspect, showing short epipleuron (*ep*).

patch, *i. e.*, nearer the suture, more or less round, the outer of irregular shape, showing appearance of being formed by the fusion of two spots; two larger patches similarly placed in a transverse line across the middle, each being broad, showing signs as though formed by the fusion of two spots, and if they extended a little more in width would form a band across the middle; a group of more or less round and triangularly placed spots on the apical area. In the type-specimen these are very close together owing to their being somewhat enlarged, and at least two tend to coalesce. On the underside a large ill-defined black patch on each side of the metasternum, and a row of black patches on each side of the abdomen progressively diminishing in size and intensity of colour. Eyes and scutellum black. The intensity of the general colour is not constant; sometimes the paler colour predominates, while in others the brown becomes stronger.

Head with the vertex impunctate. Antenna hardly extending to the middle of the elytron; third segment nearly equal to fourth. *Prothorax* about twice as broad as long; anterior margin strongly concave, posterior slightly convex, sides rounded; upper surface very minutely punctate. *Scutellum* smooth, shining, and impunctate. *Elytra* distinctly broader than the prothorax, confusedly, finely and fairly closely punctate. *Underside* shining, impunctate, covered with fine hairs.

Length, 12–17 mm.

Distribution. ASSAM. Sylhet.

Type in the British Museum.

22. **Oides maculata** (Olivier).

Adorium maculatum Oliv., Entomologie, v, 1807, p. 611, no. 92 *bis*, pl. 1, f. 4 (Adorium).

Adorium subhemisphæricum Guérin, Voy. Coqu., Zool. ii, pt. 2, 1838 *, p. 146; Fairmaire, Ann. Soc. Ent. France, (6) viii, 1888, p. 374.

Oides indica Baly, Cist. Ent. ii, 1879, p. 443; Jacoby, Ann. Mus. Civ. Genova, xxvi, 1889, p. 206; Gahan, Ann. Mag. Nat. Hist. (6) vii, 1891, p. 460.

General colour shining brown, varying from a very pale shade to a deep one, and in some cases mixed with grey; three to six apical segments of antenna black or blackish; metasternum and a patch on each side of each abdominal sternite black. There is considerable variation in the black patches on the underside; in some cases the black colour has spread over almost the whole of the underside, leaving the junctions between the sclerites unstained, or the black colour may be reduced to a minimum, becoming quite obsolescent.

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* See Sherborn, Ann. Mag. Nat. Hist. (7) xvii, 1906, p. 236.

Head with the apex smooth and impunctate ; interocular space with a depression in the middle and having a median fine longitudinal line which is continued to the apex of the triangular clypeus, thus dividing the interantennal frontal elevations, which are not pronounced. Antenna extending a little beyond the middle of elytron ; third segment nearly equal to fourth. *Prothorax* slightly more than twice as broad as long ; sides rounded ; antero-lateral angles acutely rounded, posterior ones broadly rounded ; upper surface gently convex from side to side, seen under a high magnification very finely and scatteredly punctate. *Scutellum* triangular, with the apex rounded ; surface smooth and impunctate. *Elytra* closely and confusedly punctate, each puncture being surrounded by a round dark area. These punctures are comparatively stronger than those of the pronotum. *Underside* sparsely covered with fine hairs. The sides of elytra have attained an unusual expansion similar to that of *O. coccinelloides* Gahan.

Length, 10·5–13 mm. ; *breadth*, 7·5–10·5 mm.

O. indica : *length*, 13 mm. ; *breadth*, 10·5 mm.

Distribution. UNITED PROVINCES : Western Almora, Kumaon, June 1918 (*H. G. Champion*). BENGAL : Barrakpore, near Calcutta ; Sarda (*F. W. C.*). DARJEELING DISTRICT : Pashok, 3,500 ft., 26. v.–4. vi. 1916 (*F. H. Gravely*). SIKKIM. ASSAM : Shillong, 15. v. 1924 (*Bose*) ; Patkai Mts. (*Doherty*) ; Khasi Hills, Nongpoh (*D. Nowrojee*). BURMA : Ruby Mines (*Doherty*) ; Leo, 1,170 ft., x. 1915 (*Miss Molesworth*). ANDAMAN ISLANDS (*Captain Wimberley*). PENANG (*Bowring*). JAVA. CAMBODIA (*Mouhot*).

Type of *O. indica* Baly in the British Museum.

Types of *maculata* Oliv. and *subhemisphæricum* Guérin probably are in the Paris Museum of Natural History.

23. **Oides pectoralis** (Clark).

Rhombopala pectoralis Clark, Ann. Mag. Nat. Hist. (3) xv, 1865, p. 144.
Oides pectoralis Jacoby, Notes Leyd. Mus. vi, 1884, p. 37 ; Duvivier, Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. xlv.
Oides nigripes Jacoby, Entomologist, xxiv, 1891, Suppl. p. 34.

Body broad and ovate. General colour of the upper side uniformly shining brown, varying from a very light colour to a fairly dark tint. Viewed from above head black, with the vertex brown, which sometimes spreads over the interantennal elevations ; upper side of four or five basal segments of antenna brown. On the underside, head, mouth-parts, antennæ, the whole of the breast, legs, and a spot on each side of each abdominal sternite black, or in some cases pitch-brown.

Head with the vertex smooth and impunctate; depression in the middle of the interocular space deep; interantennal elevations not very pronounced, transverse. Antenna extending to some extent beyond the humerus; third segment very slightly longer than fourth; sixth to ninth slightly thicker than others. *Prothorax* about twice as broad as long; sides rounded; posterior lateral angles rounded, anterior ones more acutely rounded; upper surface smooth, impunctate, under a high magnification a few scattered punctures are recognizable. *Scutellum* triangular, smooth, impunctate.

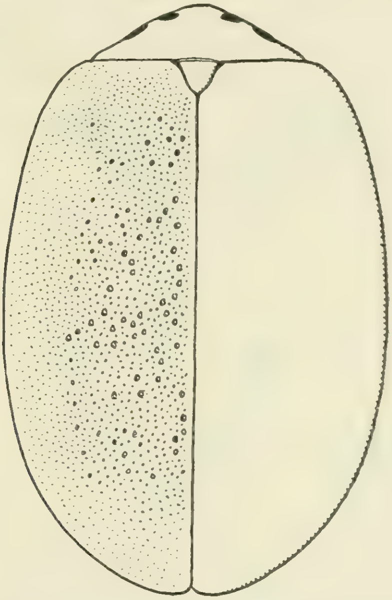

Fig. 35.—*Oides pectoralis* (Clark), showing the nature of punctuation on elytra.

Elytra broader at base than the prothorax, more broadened posteriorly; upper surface covered with a mixture of coarser and finer punctures, the former being scattered more on the central area, the latter on the basal and lateral areas; besides these there are coloured spots which are also very minute. The distribution of elytral punctures varies, as is to be expected from the wide range of the species. *Underside* sparsely covered with fine hairs; epipleuron short, ending abruptly before the middle.

Length of type-specimen of *pectoralis* Clark, 9 mm.; *breadth*, 6·5 mm.

Length of type-specimen of *nigripes* Jacoby, 13·5 mm.; *breadth*, 8·5 mm.

Length of specimens from Burma, 10·5 mm.; *breadth*, 7·5 mm.

Type-locality of *pectoralis* Clark: Siam.

Type-locality of *nigripes* Jacoby: Sikkim.

Distribution. SIKKIM: Rungbong Valley, Gopaldhara (*H. Stevens*); Mungpu; Tukuar, 5,000 ft., vii. 1912. BENGAL: Darjeeling District; Pashok, 2,500 ft., 26. v.–14. vi. 1916 (*F. H. Gravely*). ASSAM: Khasi Hills, Majain, 1,000–3,000 ft., v. 1905. MANIPUR (*Doherty*). BURMA: Karen Hills (*L. Fea*); Ruby Mines (*Doherty*); Momeik (*Doherty*); Tharrawaddy. MALAY PENINSULA: Penang (*Lamb*); Perak (*Doherty*); Ligor (*Casteln*); Selangor, Singapore (*N. D. Ridley*). SUMATRA: Lampong (*Buxton*). SIAM.

It will be noticed that the type-specimen of *pectoralis* (Siam) is small, and that of *nigripes* (Sikkim) is much larger, both types being in the British Museum.

In the latter the brown colour has become very pale, almost white, while *pectoralis* is quite brown. It may be added that specimens from intermediate localities such as Manipur, Burma, are brown and intermediate in size. As noted above there is a certain amount of variation in the elytral punctuation. Although there are variations I feel they may be considered as falling within the specific limits.

24. **Oides semipunctata** Duvivier.

Oides semipunctata Duv., Comptes-Rendus Soc. Ent. Belg. xxviii, 1884, p. cxxxiii.

Oides quadrimaculata Jacoby, Mém. Soc. Ent. Belg. vii, 1900, p. 126.

General colour shining brown, slightly varying in intensity; viewed from above head brown; two pairs of small round black spots on pronotum, each pair being situated on the lateral area; on the underside the metasternum and a transverse patch on each side of each abdominal sternite always black, but the black colour may spread over the breast and the legs in varying degree, and sometimes completely; five apical segments of antenna always black, the rest may be completely brown, or partly brown and partly black, the latter generally covering the underside.

Head with the vertex smooth, impunctate; interocular excavation fairly deep; interantennal elevations transverse. Antenna extending slightly beyond the humerus, third segment slightly longer than fourth; sixth to eighth segments in some aspects appear to be slightly thickened. *Prothorax* about twice as broad as long; basal and front margins widely arched; posterior lateral angles more widely rounded than the anterior ones; upper surface smooth, impunctate but for a few punctures which can only be seen under high magnification. *Scutellum* triangular, smooth, impunctate. *Elytra* somewhat broader at base than the prothorax. The surface sculpturing is similar to that of *O. pectoralis* (Clark). *Underside* similar to that of *O. pectoralis* (Clark).

Length, 10–11·5 mm.; *breadth*, 7–8·5 mm.

Distribution. ASSAM: Patkai Mts. (*Doherty*). BURMA: North Chin Hills; Tharrawaddy. SIKKIM: Mungpu (*Atkinson*); Rungbong Valley, Gopaldhara (*H. Stevens*).

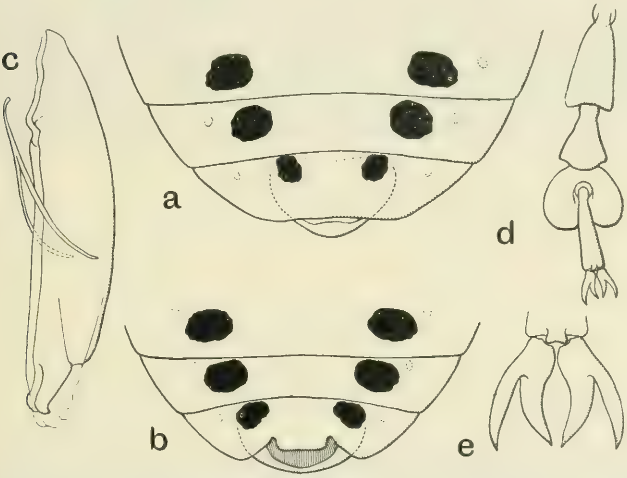

Fig. 36.—*Oides semipunctata* Duviv. *a*, abdominal sternites of ♀; *b*, abdominal sternites of ♂; *c*, ædeagus; *d*, tarsus; *e*, claws.

Type of *quadrimaculata* Jacoby in the British Museum.

Type of *semipunctata* Duviv. in Brussels Museum.

I have no doubt that *quadrimaculata* Jacoby is the same species as *semipunctata* Duviv., and probably both are varieties of *pectoralis* (Clark).

In going through Mr. H. Stevens's collection from Gopaldhara I find that there are altogether sixty-five examples of *O. pectoralis* (Clark) and *O. semipunctata* Duviv. apparently caught together. The proportion of males and females in each case is as follows:—*O. pectoralis*, 10 ♂♂, 14 ♀♀; *O. semipunctata*, 30 ♂♂, 10 ♀♀; one example is undeterminable. It will be observed that in *pectoralis* the females predominate, while in *semipunctata* the number of males is three times that of females.

25. **Oides flava** (Olivier).

Adorium flavum Oliv., Entomologie, v, 1807, p. 611, no. 92 *bis*, pl. 1, fig. 5 (Adorium).
Oides inornata Baly, Cist. Ent. ii, 1879, p. 444.
Oides albicans Duvivier, Notes Leyd. Mus. vi, 1884, p. 237.

Body narrowly oblong-ovate.

Colour uniformly yellow-brown; six, five (or less) apical segments of antenna fuscous or blackish. In some cases the metasternum and most of the abdominal sternites are black, but this coloration varies in extent.

Head with the vertex smooth, impunctate; median depression in the interocular space rather shallow; median longitudinal impressed line fine; interantennal elevations not very pronounced. Antenna extending to nearly the middle of the elytron; third segment almost equal to fourth, fifth shorter than fourth. *Prothorax* twice as broad as long; basal margin very slightly sinuate, front margin very feebly concave and narrower than the basal margin; sides obliquely straight; posterior lateral angles rounded, anterior ones more acutely rounded; upper surface extremely minutely and sparsely punctate. *Scutellum* triangular, with the apex rounded and the surface smooth, impunctate. *Elytra* confusedly and fairly closely punctate; the punctures, though fine, are stronger than those on the pronotum; lateral edges feebly reflexed. *Underside* very thinly covered with fine hairs.

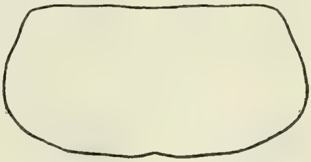

Fig. 37.—*Oides flava* (Oliv.). Outline of pronotum

Length, 7·5–10·5 mm.; *breadth*, 4·5–6·5 mm.

Distribution. BOMBAY: Kanara, Castle Rock, 11–26. x. 1916 (*S. Kemp*). SOUTH INDIA: Nilgiri Hills (*G. F. Hampson*). BENGAL: Rungpur, 17. vii. 1905, on rice; Comilla; Sarda (*F. W. C.*). ASSAM: Sadiya (*Doherty*). MALAY PENINSULA: Penang. SUMATRA. JAVA. SOUTH-EAST BORNEO: Pangaron. PHILIPPINE ISLANDS.

Type of *flava* Ol. in the Coll. Macé and in the Natural History Museum, Paris.

Type of *inornata* Baly in the British Museum.

26. **Oides scutellata** (Hope).

Adorium scutellata Hope, in Gray, Zool. Miscell. 1831, p. 28.

General colour brown; six apical segments of antenna entirely piceous, three basal segments more brown than piceous, fourth and fifth more piceous than brown. Scutellum and suture narrowly piceous. The brown colour of the legs is mixed with piceous, especially on the femora, the tarsi and the points of articulation. Underside black; the brown colour varies, tending to become grey or dirty.

Head with the vertex impunctate. Antenna hardly extending to the middle of the elytron; third segment nearly equal to fourth in the type, but in another example the third is slightly longer. *Prothorax* about twice as broad as long; the convex basal margin forms a continuous curve with the rounded sides; anterior margin deeply concave, with anterior lateral angles acute; upper surface sparsely and finely punctate when viewed under a high magnification. *Scutellum* triangular, surface smooth, shining and impunctate. *Elytra* with the humerus convex; surface closely punctate. *Underside* shining, sparsely covered with fine hairs.

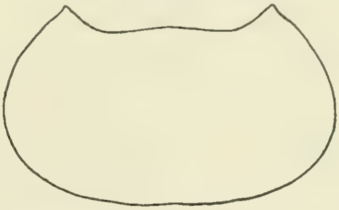

Fig. 38.—*Oides scutellata* (Hope). Outline of pronotum.

Length (type-specimen), 9·5 mm.; *breadth*, 6·5 mm.

Larger specimens in the collection of the British Museum, *length*, 10·5 mm.; *breadth*, 7·5 mm.

Distribution. NEPAL (type-locality, Hardwick Collection). SIMLA, v. 1918 (*Fletcher*). UNITED PROVINCES: Mussooree; Western Almora, Kumaon, Ranikhet, Naini Tal (*H. G. Champion*). ASSAM: Khasi Hills, 1,000–3,000 ft.; Upper Shillong, 12–15. vi. 1918 (*Fletcher*).

Type in the British Museum.

Although the insect was discovered originally from Nepal it has a wide distribution along the Himalayan ranges to Assam, and probably beyond. I have made notes particularly on the type-example because it is about one hundred years old.

27. **Oides innocua** Gahan.

Oides innocua Gahan, Ann. Mag. Nat. Hist. (6) vii, 1891, p. 457.
Oides kanarensis Jacoby, Ann. Soc. Ent. Belg. xlviii, 1904, p. 393.

General colour yellow-brown, metasternum and two or three apical segments of antenna black; sometimes the underside of the third segment of tarsi black.

In *kanarensis* Jacoby, which I consider a variety of *innocua* Gahan, there is a small obsolescent piceous spot on the lateral area a little behind the humerus, but this spot tends to disappear in an example before me.

Head with the vertex impunctate; a median longitudinal impressed line, which is sometimes very faint. Antenna hardly extending to the middle of the elytron; second segment not distinctly shorter than third, fourth about equal to third. *Prothorax* about twice as broad as long; anterior margin concave, posterior widely convex, sides rounded, anterior lateral angle rounded; upper surface generally more shining than the elytra, smooth, diffusely covered with very fine punctures which can be seen in certain lights under a high magnification. *Scutellum* triangular, smooth, impunctate, apex narrowly rounded. *Elytra* with the humerus prominent; finely punctate, the punctures being stronger and closer than on the pronotum. *Underside* shining, sparsely covered with fine hairs. The sides of the elytra extend to only moderate length beyond the epipleura, the latter are somewhat expanded, and the margin rounded about opposite the middle of the metathoracic episterna, and then abruptly narrowed behind.

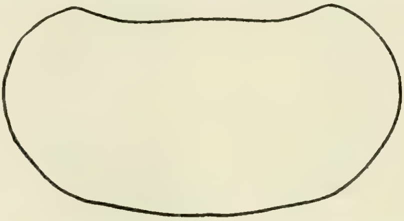

Fig. 39.—*Oides innocua* Gahan. Outline of pronotum.

Length, 9–11 mm.; *breadth*, 7·5 mm.

Distribution. Bombay: Kanara (*T. R. Bell*).

Type of *O. innocua* Gahan in the British Museum (type-locality: India).

Type of *O. kanara* Jacoby in the British Museum (type-locality: Kanara).

A translation of the original description in Latin of *livida* Weber is given below, without attempting to identify the species with any already known from our region:—

Oides livida Weber.

Oides livida Weber, Obs. Ent. 1801, p. 53; Weise, Tijdschr. Ent. lxv, 1922, p. 57.

Fuscous. Elytra and the posterior end of the body yellow-brown.

Ex India Orientale. Confused by Dumerilio.

Head fuscous; antennæ black, with the base pale. Thorax fuscous, channelled. Elytra with elevated yellowish lines. Legs testaceous. Abdomen fuscous, with the end yellow-brown.

Genus **DORYXENA** Baly.

Doryxena Baly, Journ. of Ent. i, 1861, p. 202; Chapuis, Gen. Col. xi, 1875, p. 197, 207.

GENOTYPE, *Galleruca grossa* Hope. Fixed by Baly.

Body oblong, broader behind than in front; apex of elytra broad; seen in profile the body seems to be somewhat bent, so that the outline of the front of the head appears perpendicular. *Head* as broad as the front margin of the pronotum; vertex not very convex; front with a longitudinal impressed line; areas round the roots of antennæ excavated, so that the surface round the excavation appears convex. Antenna fairly long, covered with fine hairs; first segment longest, club-shaped; second always small and rounded; third about equal to fourth, or slightly smaller; remaining segments vary in the different species. Eyes not strongly convex. *Prothorax* always much narrower than the base of the elytra; always broader than long; sides undulated, in some cases the crests of the undulations much accentuated; upper surface with elevations and depressions. *Scutellum* with the apex truncate. *Elytra* confusedly punctate; lateral margins explanate; in some cases the explanate character is more pronounced. *Underside* covered with fine hairs; the metasternum is produced into a process between the intermediate coxæ, a character by which the genus can be easily differentiated. Legs robust, covered with stiff hairs; claw-segment of tarsi long; each claw divided into two branches, the smaller one internal.

Distribution. NEPAL. MANIPUR. BURMA.

Key to the Species.

1.	Underside blackish	*D. siva* sp. n., p. 124.
	Underside not blackish..................	2.
2.	Scutellum black; crests of undulations of lateral margins of pronotum not strongly pronounced	*D. geniculata* Baly, [p. 123.
	Scutellum not black; crests of undulations of lateral margins of pronotum strongly pronounced	*D. grossa* Hope, p. 122.

28. **Doryxena grossa** Hope.

Doryxena grossa Hope, in Gray, Zool. Miscell. 1831, p. 28; Baly, Journ. of Ent. i, 1861, p. 202, pl. xi, f. 10.

Elytra from almost black to light brown; there are intermediate shades of pitch-black and dark brown; sometimes the brown colour is mixed with grey. Prothorax always brown, never having the deeper shades of elytra. Antennæ always brown, sometimes somewhat darker, but not like elytra. Underside and legs brown; the tarsi in some cases darker. The size varies a great deal, as shown below.

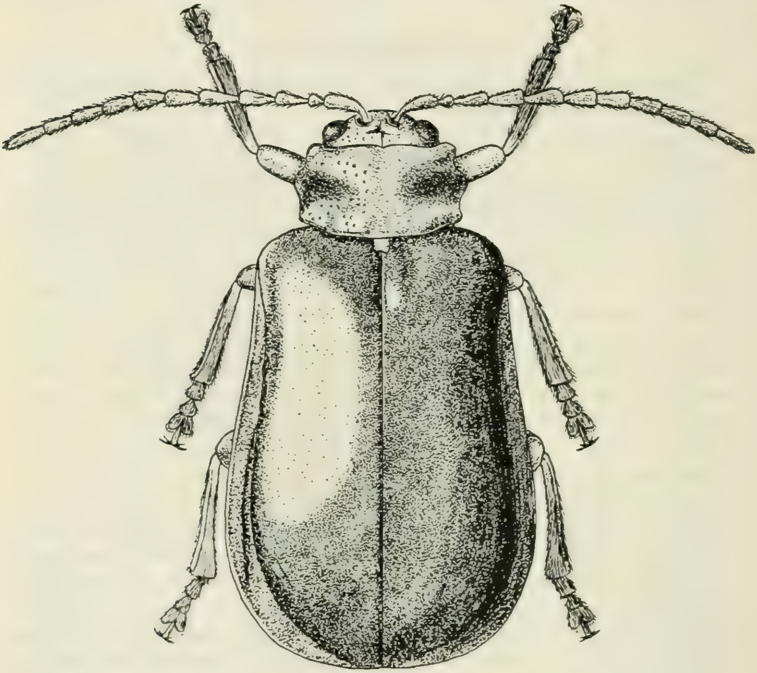

Fig. 40.—*Doryxena grossa* Hope.

Head with the vertex sparsely but not uniformly covered with punctures, more crowded in the centre than at the sides. Antenna extending beyond the middle of the elytron; third segment slightly shorter than fourth; fifth slightly shorter than fourth; fifth, sixth and seventh subequal; eight, ninth and tenth subequal, but each somewhat shorter than each of the previous segments; eleventh slender, longer than tenth. *Prothorax*: front margin undulate, with a little emargination in the middle ; sides undulate, with a lobe in the middle strongly produced ; basal margin gently sinuate ; anterior and posterior lateral angles produced into a lobe and each bearing a fine seta. Upper surface with a large depression on the lateral area ; completely covered with punctures. *Scutellum* rather oblong, with the apex truncate and with a little emargination ; area all round depressed ; surface impunctate. *Elytra* : the punctures fine, on the apical area becoming finer than elsewhere ; explanate margin also punctate ; apical edge with a fringe of fine hairs. *Underside* : owing to the explanate margin and the apical prolongation of the elytra the abdomen appears sunk in a cavity.

Measurements of the type-specimen :—

Length of elytra : 14·5 mm.
Length of pronotum : 3 mm.
Greatest breadth of pronotum : 5·5 mm.
Length of exposed part of head : 3 mm.
Length of antenna : 10·75 mm.
Length of smallest specimen : 12 mm.
Breadth of same : 7 mm.

Distribution. NEPAL (type-locality). This species has also been taken in China. There are two specimens collected by F. W. Badgley in Assam ; these are dirty grey-brown in colour. It has a wide distribution along the Himalayan range, including its far eastern spurs.

Type in the British Museum.

29. **Doryxena geniculata** Baly.

Doryxena geniculata Baly, Cist. Ent. ii, 1879, p. 451.

Posteriorly much broader than in front, so much so that the posterior lateral angles of the elytra, though rounded, are prominent. General colour of elytra varies from dark chestnut-brown to lighter brown ; scutellum, points of articulation between the femora and tibiæ, and tarsi black ; the rest of the body always brown, in some cases mixed with dirty grey. The size varies, but the characteristic coloration, as stated, is constant.

Head depressed along the median longitudinal line ; sparsely covered with punctures. Antenna extending a little distance beyond the humerus ; third segment shorter than fourth ; fifth also shorter than fourth ; fifth to the last subequal, the latter being somewhat pointed ; the last five segments appear in some aspects somewhat flattened. *Prothorax* : front margin widely emarginate ; posterior margin and the sides undulate ; in the undulation of the sides the crests are not strongly raised as in *D. grossa* Hope. Anterior angles acute, rounded, posterior angles obtuse, each having a pore to contain a fine seta ; upper surface sloping on each side, the lateral area having a shallow depression ; completely covered with punctures, which are more crowded at the sides than on the middle or front areas. *Scutellum* broader at base than at apex, which is widely rounded ; surface impunctate ; in some cases the sides have a few punctures. *Elytra* convex from base to apex, closely covered with punctures ; margins fairly explanate ; at the sides below the humerus surface deeply concave. *Underside* : in this species the metasternal process is more pronounced than in the other two.

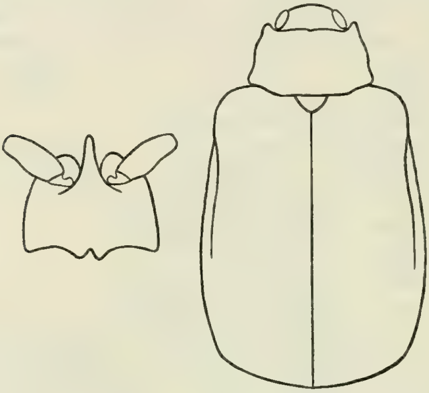

Fig. 41.—*Doryxena geniculata* Baly.
The figure on the left shows the metasternal process.

Length, 16 mm. ; *breadth* at apex of elytra, 10 mm.

Length of a smaller example, 13·5 mm. ; *breadth*, 8 mm.

Distribution. ASSAM (type-locality) : Shillong, 25. x. 1924 (*Fletcher*). MANIPUR (*Doherty*).

Type in the British Museum.

30. **Doryxena siva** sp. nov.

Body more elongate than the other two species ; parallel-sided, though slightly broadening behind as is usual in the genus. General colour dirty grey-brown. Scutellum and underside blackish.

Head with the vertex somewhat more convex on each side of the median longitudinal impression ; with only a few scattered punctures near the middle. Antenna extending to a little distance beyond the humerus ; third, fourth and fifth segments subequal ; sixth shorter than fifth ; sixth and seventh nearly equal ; eighth to eleventh subequal, the latter somewhat pointed. *Prothorax* : front and hind margins undulate ;

lateral margins strongly undulate, similar in contour to that of *D. grossa* Hope ; upper surface shining, constricted behind the middle, sloping and depressed on each side, sparsely covered with very fine punctures. *Scutellum* broader at base than at apex, which is broadly rounded ; surface impunctate, in some cases with some punctures at the sides. *Elytra* more closely punctate than in the other two species ; lateral margin not so explanate as in the other two species. *Underside* : metasternal process not strongly produced.

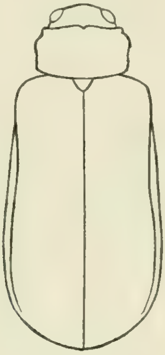

Fig. 42.—*Doryxena siva* sp. nov.

Length, 14 mm. ; *breadth*, 7·25 mm.

Distribution. MANIPUR (*Doherty*).

Type in the British Museum.

Described from seven examples.

Genus **AGETOCERA** Hope.

Agetocera Hope, Coleopterist's Manual, iii, 1840, p. 170 ; Chapuis, Gen. Col. xi, 1875, p. 177.
Agelocerus Hope, l. c. p. 170.

GENOTYPE, *Agetocera mirabilis* Hope.

Hope erected the genus on one species.

Body generally large, robustly built, somewhat narrowed behind the shoulders and then slightly broadened behind.

Head exserted, narrower than the prothorax, with the vertex convex and the front (the interocular space) flat or depressed in the middle. The head is capable of being withdrawn up to the eyes into the prothorax. There is a fine impressed line along the middle which is in some cases obsolete, and in continuation with this line there is an elevated ridge between the antennæ, but in some cases this is not prominent. Clypeus raised. Areas behind the roots of antennæ well raised and well defined. Labrum much broader than long, with the apex widely rounded and very faintly emarginate in the middle, and large enough to cover the mandibles ; in some cases, however, the sides and tips of the mandibles are exposed. Maxillary palpi large, with the apical segment minute and penultimate segment much dilated. Labial palpi comparatively small. Antenna extending to about the middle of the elytron, sometimes longer. In the male the structure differs from that of the female, as will be indicated under each species. Eyes strongly convex. *Prothorax* much narrower than the base of the elytra, almost quadrate, narrower at the base and broadened in front ; the lateral margins sinuate, being convex before the middle ; the front and basal margins almost straight ; posterior lateral angles right angles or slightly greater in some cases ; anterior lateral angles with the hair-bearing pore prominent, each of the four corners with a fine hair. Upper surface smooth, generally impunctate, with a shallow depression on the lateral area, and with a narrow area along each lateral margin reflexed, in some species strongly so. *Scutellum* triangular, with the apex narrow and rounded and the surface generally smooth. *Elytra* parallel-sided, with the apex rounded ; humerus prominent, with a small area on the inner side, *i. e.*, towards the scutellum, depressed ; a fairly large basal area on each side of the scutellum gently convex, with a consequent depression behind ; generally confusedly and fairly closely punctate ; not hairy ; margin along each side very slightly reflexed ; seen sideways there may be a shallow depression behind the middle and a longitudinal ridge ; seen from above in some species the last visible tergite is exposed. *Underside* covered with fine hairs ; epipleuron slightly broader at the base and continued to the apex, its surface flat and sparsely punctate. Legs fairly long ; tibiæ thickened towards the apex ; the hairs on each tibia are stiff and bristly towards the apex, where, on the underside, is a spine ; first segment of each tarsus about equal in some species, while in others first segment of the hind tarsus is longer ; second segment triangular, claw-segment much longer than the bilobed segment ; claws long and bifid.

Secondary sexual characters. In ♂ (1) the antenna is modified (an account of the modifications is given in the Introduction under the heading Antennæ) ; (2) the last visible sternite is modified ; (3) in some cases the first segment of the front and middle tarsi is modified.

Distribution. INDIA. BURMA. INDO-CHINA. CHINA. FORMOSA.

Key to the Species.

1. Head and pronotum yellow, yellow-brown, dark brown or red; elytra black or violet	2.
Head and pronotum black; elytra violet, green or blue	5.
2. Antenna of male with eighth segment characteristically enlarged; elytra violet, sometimes mixed with blue	3.
Antenna of male with ninth segment enlarged; elytra black; head and prothorax generally red, sometimes yellow	*A. lobicornis* Baly, [p. 133.
3. Insect large; length 14–16 mm., breadth 8–9 mm.; third segment of antenna of both sexes with a deep emargination on the inner side	*A. mirabilis* Hope, [p. 127.
Insect smaller; third segment of antenna of both sexes not emarginate	4.
4. Antennæ, head and prothorax concolorous	*A. hopei* Baly, p. 130.
Antennæ black, head and prothorax red or red-brown	*A. chapana* Labssr., [p. 132.
5. Elytra purple or deep violet	*A. flaviventris* Jac., [p. 137.
Elytra green or the greenish tint preponderating	*A. birmanica* Jac., [p. 135.
Elytra pure blue	*A. manipuria* Mlk., [p. 139.

31. **Agetocera mirabilis** Hope.

Ægeloceras mirabilis Hope, in Gray, Zool. Miscell. 1831, p. 29.
Aplosonyx heterocera Redtb., Reise 'Novara,' Zool. ii, Col. 1868, p. 206.
Agetocera heterocera Redtb., Duvivier, Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. xlvi.

The largest species in the genus. General colour bright yellow, yellow-brown or dark brown; the elytra deep violet or purple, and the two apical segments of antennæ, the tarsi, and the apical halves of the tibiæ blackish. In some cases the blackish colour is much deeper than in others. Eyes black.

Head with the vertex and upper surface smooth and impunctate; median depression not very deep; interantennal elevation not very strong. Antenna (see below under secondary sexual characters). *Prothorax* smooth and almost impunctate, but under high magnification very fine punctures can be seen scattered on the middle area, and on the lateral area in front and on the reflexed margin there are punctures which are closer and somewhat larger; but this character is variable. In the Chinese examples the punctation is somewhat stronger, especially on the lateral areas. The lateral and median depressions vary in depth and size considerably. The posterior margin has in some cases a distinct emargination in the middle, but in other examples this is almost obsolete. *Scutellum* smooth, impunctate. *Elytra* closely and confusedly punctate, the punctures somewhat coarser on the lateral reflexed margin and on the basal area.

Secondary sexual characters. (1) In ♂ first segment is club-shaped but not very long, second small and deeply constricted at the base, third much larger than second, dilated towards the apex and narrowed at the base; fourth much longer than third, dilated at the apex and constricted at the base, and deeply excavated on the inner margin; fifth similar to fourth, though slightly shorter, and with the excavation much less pronounced; sixth similar and almost equal to fifth; seventh very small, much broader at the apex than at the base, the apex slightly produced outwardly; the eighth segment ovate, narrower at the base than at the apex, straighter on one side and more convex on the other. Near the apex on the inner side an area is somewhat flattened, and on it is situated a raised elliptical structure, with its surface

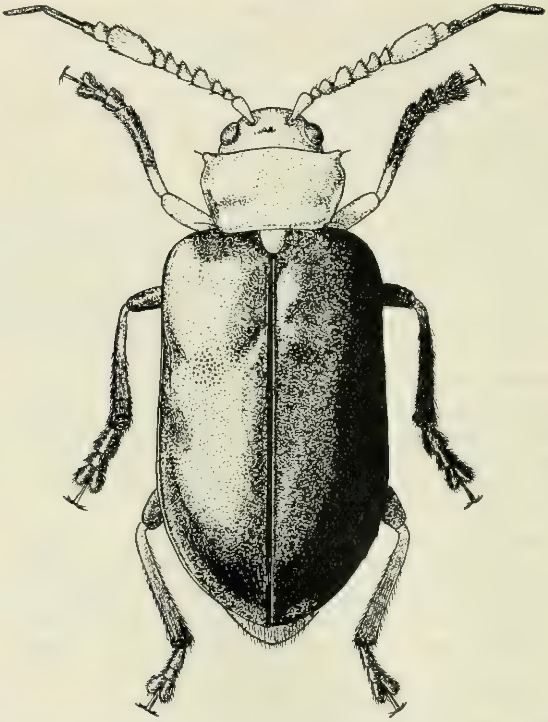

Fig. 43.—*Agetocera mirabilis* Hope.

smooth, shining and sloping. At the bottom of this slope lies the orifice. The apex of the eighth segment is plane, the surface being smooth and having the ninth segment articulated on it. The ninth segment much smaller and deeply cut away on the upper side, dividing it into portions ; the basal portion much narrower at the base than at the apex. which has a large, smooth and shining surface. The apical portion is rounded distally and in some aspects looks as if it were stalked on the basal portion. The tenth and eleventh segments elongate, slender, cylindrical, the tenth shorter than eleventh, an apical portion of which is clearly defined, resembling a separate segment. The last two segments uniformly and thickly covered with hairs, the other segments also covered with hairs but not uniformly ; near the apices of the modified segments the hairs are longer and stiffer. The excavated portions have specialized areas which are most probably sensory. In ♀ the first four segments are similar in structure to the corresponding segments of the male ; the fifth, sixth and seventh slender, nearly equal to each other in length, very slightly dilated at the apex ; the eighth cylindrical, not enlarged as in the male, as broad at the base as at the apex and much longer than the seventh ; the ninth nearly equal to the eighth in length, but somewhat more slender ; the tenth and eleventh cylindrical, slender and elongate ; the tenth shorter than the eleventh, which has a certain apical portion well defined, as in the male. The eleventh segment is shorter than the corresponding segment of the male. On the whole the antenna of the female is nearly equal in length to that of the male.

(2) In ♂ the last visible sternite is divided into three lobes, a median, which is depressed in the middle, and two lateral.

In ♀ the last visible sternite is uniformly and widely emarginate at the apex.

Length (type-example, a small male), 12·5 mm. ; *breadth*, 6·5 mm.

A large male, *length*, 16 mm. ; *breadth*, 9 mm.

A female, *length*, 14 mm. ; *breadth*, 8 mm.

A large female, *length*, 16·5 mm. ; *breadth*, 9 mm.

The females are not necessarily larger than the males.

Distribution. THE HIMALAYAS : Nepal, Darjeeling, Gopaldhara, 4,720–6,100 ft., 26. vi. 1914 (*H. Stevens*). BURMA : Karen Mts. (Brit. Mus., Fry Coll.). CHINA : Hainan (*J. Whitehead*). Laos (*Mouhot*).

Type in the British Museum.

Weise has recorded *A. orientalis* as occurring in the Darjeeling District (Tijdschr. Ent. lxv, 1922, p. 63). This is due to a female example 15 mm. long, collected by S. Gutmann.

Weise originally described *orientalis* from examples collected in Tonking (Deutsche Ent. Zeitschr. 1902, p. 367). Laboissière, who has examined many examples of *orientalis* from Tonking, is of the opinion that such a large specimen cannot be *orientalis*, for the largest example of *orientalis* does not go beyond 13 mm. (Ann. Soc. Ent. France, xcviii, 1929, p. 262). I agree with Laboissière ; therefore I do not include *orientalis* in the present study. The type of *orientalis* is in the University Museum of Zoology in Berlin. Most probably Gutmann's example belongs to this species (*A. mirabilis*).

32. **Agetocera hopei** Baly.

Agetocera hopei Baly, Trans. Ent. Soc. Lond. 3rd series, ii, part 5, 1865, p. 438 ; Duvivier, Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. xlvi.

Agetocera pulchella Chapuis, Gen. Col. xi, 1875, pl. 125, f. 5, ♂ ; Weise, Deutsche Ent. Zeitschr. 1902, p. 367.

General colour yellow-brown, with the elytra deep violet or purple ; the underside, except that of the prothorax, dark brown, sometimes red-brown ; at least apical half of tibia and whole of tarsus pitch-brown ; the last segment of antenna, sometimes the last two or three segments, blackish ; eyes black. The colour of the apical half of tibia is not well defined, it is diffuse, often spreading over almost the whole of the tibia.

Head with vertex and upper surface impunctate and with a median shallow depression ; interantennal ridge and raised areas behind the antennæ not prominent. (For antenna see below.) *Prothorax* : the upper surface smooth and impunctate except the lateral area in front, where a few scattered punctures are visible under high magnification. This character is variable. *Scutellum* smooth and impunctate. *Elytra* confusedly punctate. The punctures are finer and not so closely placed as in *A. mirabilis* Hope.

Secondary sexual characters. (1) In ♂ the antenna is modified as follows :—The first segment club-shaped ; second somewhat longer than third, constricted at the base and dilated towards the apex ; from the third to seventh the segments appear to be progressively thickened, so that the seventh is the broadest, each being constricted at the base and dilated towards the apex ; fourth slightly shorter than third ; fourth, fifth and sixth equal in length ; seventh shorter than sixth, as broad as the base of the eighth, its upper margin slightly emarginate. The eighth segment is funnel-shaped, the upper surface being somewhat convex. At the apex, viewed from above, there is a concave smooth and shining area, which is produced into a process on each side ; that on the inner side is triangular, having sharp edges, while that on the outer side is rounded. At the inner side on this area is articulated the ninth segment. Below this smooth area the surface is covered with long hairs which in a certain aspect look like a bunch. At the base of the projection on the inner side of the smooth area is the orifice, which is circular, with a raised rim. The ninth is a much smaller segment, convex on the outer side and deeply cut away on the inner. The concave surface thus formed is triangularly produced near its base on the inner side. The projection of the ninth segment is very close to that of the eighth, which is on the inner side. The tenth and eleventh segments are cylindrical, slender, and uniformly covered with hairs; the tenth gently constricted towards the apex, shorter than the eleventh, which is the longest segment, and has a portion towards the pointed apex clearly defined. The other segments are not covered with hairs except at the apices, where they are very fine.

In ♀ the first segment club-shaped, the second like that of the male; the third, fourth, fifth and sixth equal to each other, slightly narrower at the base than at the apex; the seventh equal in length to the sixth but more dilated at the apex, which is produced at the outer angle; the eighth longer and broader than any of the previous segments except the first, as broad at the base as at the apex; the ninth about equal in length and breadth to the eighth, but somewhat more dilated at the apex than at the base; the tenth and eleventh cylindrical, slender, and uniformly covered with hairs as in the last two segments of the male, and the tenth shorter than the eleventh, which has a well-defined pointed apical portion. The tenth segment of the female is shorter than the tenth of the male, and the eleventh of female is also slightly shorter than the eleventh of the male, though on the whole the antenna of female is not shorter than that of the male.

(2) In ♂ the last visible sternite is enlarged and divided into three lobes; the middle lobe is greatly enlarged, with a deep cavity in the middle, and separated from the lateral lobes by a deep cleft on each side.

In ♀ the last visible sternite has a wide emargination at the apex; in some examples this emargination is very deep, while in others it is almost absent.

Length (the type-example, a male), 12 mm.; *breadth*, 6 mm.

Males, *length*, 10·5–13 mm.; *breadth*, 5–7 mm.

Females, *length*, 11·5 to slightly less than 14 mm.; *breadth*, 6–7 mm.

Distribution. KUMAON, Gori Valley, 4,000 ft.; ALMORA, Pindar Valley, 8,000–11,000 ft., July 1920 (*H. A. Champion*). DARJEELING: 26. v.–14. vi. 1916 (*F. H. Gravely*); Gopaldhara, Rungbong Valley (*H. Stevens*); Lebong, 5,000 ft.,

xi. 1908 (*H. M. Lefroy*); Kurseong, 5,000 ft., 18–30. iv. 1922 (*Fletcher*); vi. 1923 (*H. S. Rao*); Kalimpong, 4,000 ft., 30. vii. 1924 (*Major R. W. G. Hingston*); Pashok, 2,000 ft., 11. vi. 1916 (*L. C. Hartless*); Gantok, 24–26. vi. 1903 (Tibet Exp.). ASSAM: Sadiya (*Doherty*); Garo Hills, above Tura, 3,500–3,900 ft., ix. 1917 (*Mrs. Kemp*), viii. 1917, 15. vii. 30, (*S. Kemp*); Shillong, 22. vii. 1918 (Pusa Coll.); Patkai Mts. (*Doherty*). MANIPUR (*Doherty*). BURMA: Ruby Mines (*Doherty*); Karen Hills (*Doherty*); Hmodon, 3,900 ft., 5. v. 1918; Putao District: Sumprabum (*B. Fischer*). SOUTH SHAN STATES: Kolaw, 4,000 ft., iv. 1916 (*F. M. Mackwood*). JAVA.

Type in the British Museum.

33. **Agetocera chapana** Laboissière.

Agetocera chapana Laboissr., Ann. Soc. Ent. France, xcviii, October 1929, p. 260.

Antennæ, tibiæ, tarsi and eyes blackish; underside generally light to dark brown; head, pronotum, scutellum darker brown; elytra deep violet or purple, in some cases mixed with bluish.

Head with vertex and upper surface smooth and impunctate; median depression fairly deep. (For antenna see below.) *Prothorax* with upper surface smooth and impunctate but for a few scattered punctures on the lateral area in front; depressions on the lateral areas not very deep. *Scutellum* smooth and impunctate. *Elytra* closely covered with punctures, which are distinctly impressed but not very large and do not touch each other. *Underside*: epipleuron almost of uniform breadth throughout, only narrowing at the extreme apex, its surface scatteredly punctate.

Secondary sexual characters. In ♂ the antenna is modified as follows:—The first segment large, broader at the apex than at base; second strongly constricted at the base and dilated at the apex, somewhat shorter than third; fourth equal to third, fifth equal to sixth, seventh shorter but more dilated at the apex. The eighth segment is oblong-ovate, concave on the inner and lower sides and convex on the outer and upper sides. At about the middle of the upper surface the highest point of the convexity is attained, and from there the surface slopes towards the apex, which is concave. The ninth segment is articulated in the middle of the concavity. The orifice is situated at the inner apical angle of the eighth segment and on the upper surface. The orifice has a raised rim and its position is close to the point of articulation of the ninth. The sloping upper surface and the area round the orifice are covered with long bristly hairs; the whole of the under surface of the segment covered with short hairs. The ninth segment has a short stalk, and then is cylindrical, but somewhat narrowed towards the apex, with a flat or shallowly concave upper surface, on which is situated a strongly raised knob-like structure with a shining top and constriction at the base. This structure does not show any kind of aperture anywhere. The tenth and eleventh segments are slender, elongate and cylindrical, tenth somewhat shorter than eleventh and very slightly constricted towards the apex; the pointed apical portion of eleventh well defined, as in the other species. The whole antenna is covered with fine hairs.

In ♀ the first and second segments are similar to those of the male; fourth somewhat longer than third, fifth shorter than fourth, sixth nearly equal to fifth, seventh shorter than sixth, eighth a large cylindrical segment nearly equal to sixth and seventh together, ninth thinner and shorter than eighth, tenth nearly equal to ninth; eleventh longer, slender, with the usual apical delimited portion. The whole antenna is covered with fine hairs, which are thicker at the apices. Each of the third to seventh segments is longer than the corresponding segments of the male. The tenth and eleventh are equal to the corresponding segments of the male.

Length, males, 11·5 mm.; *breadth*, 6·5 mm.

Example from Ruby Mines, *length*, 12·5 mm.; *breadth*, 7 mm. Females, *length*, 13 mm.; *breadth*, 6·5 mm.

Distribution. BURMA: Ruby Mines (*Doherty*). CHINA: Chapa.

Type in Laboissière Collection. Two *paratypes* in the British Museum.

34. **Agetocera lobicornis** Baly.

Agetocera lobicornis Baly, Trans. Ent. Soc. Lond. 3rd series, ii, pt. 5, 1865, p. 437.

General colour red-brown, with the elytra shining black; tarsi, middle and hind tibiæ and upper side only of front tibiæ, and the apical halves of hind femora blackish; eyes black; antennæ and abdominal sternites usually lighter than the general red-brown, sometimes yellow. Out of eighteen examples before me in one case the general red-brown colour has become yellow-brown and in four cases it is mixed with blackish. The scutellum always shares the colour of the pronotum. Unlike *A. mirabilis* and *A. hopei*, in which the colour of the apical segments of antennæ differs from that of the other segments, the colour of the whole antenna in this species is uniform. In this species the ninth segment of the antenna of the male is enlarged, while in other species of the genus the eighth is enlarged.

Head with the vertex smooth and impunctate and with a median depression. (For antennæ see below.) *Prothorax* with upper surface smooth and impunctate but for a few scattered punctures on the lateral area in front; the reflexed margin on each side also contains one or two punctures. *Scutellum* smooth and impunctate. *Elytra* very finely punctate, the punctures being much finer and more sparsely distributed than those of *A. hopei*. In some examples they are so extremely fine that the surface appears almost impunctate under a hand-lens; other examples show stronger punctuation. *Underside*: the epipleuron has almost the same width throughout its length and its outer boundary is sharp and not rounded as in the other species of the genus studied here.

Secondary sexual characters. (1) In ♂ the antenna is modified as follows:—The first segment is club-shaped but not very long; second slightly smaller than third and deeply constricted at the base; from the third to the eighth the segments become progressively broader at the apex, but all are equally narrow at the base. The eighth is a small funnel-shaped segment articulated to the base of the ninth, which is greatly enlarged. Its lower and outer sides are rounded and without any special features. Its upper side is somewhat flattened, with a shallow depression nearer the base. Around the depressed area the hairs are longer. This depression does not show any orifice or aperture. I have carefully examined examples of this antenna from various aspects both in the dried state and in those that lead to the final microscopic preparation; but no sign of a tube or an external aperture could be traced. The outer apical angle is produced into a laterally flattened lobe, its apex and sides being hairless. The tenth is a short cylindrical segment articulated by a short stalk on the inner edge of the ninth segment. The eleventh slender, cylindrical, long, with the pointed apical portion well defined. The whole antenna is covered with hairs, which are usually thicker and longer at the apices of segments.

In ♀ the first two segments are similar to those of the male; although the antenna becomes gradually thicker up to the eleventh segment each of the fourth to eighth segments is longer than the corresponding segments of the male; fourth somewhat longer than third, fifth almost equal to fourth, sixth and eighth almost equal to each other in length, seventh slightly longer than either sixth or eighth; ninth longer than eighth, but almost equal to tenth, which is somewhat thinner than ninth; eleventh longer than tenth, with an apical delimited portion. The whole segment is sparsely covered with hairs. The eleventh segment of the female is shorter than the eleventh of the male. On the whole the antenna of the male seems equal to that of the female, and shorter as compared with body than that of the other species of the genus.

(2) In ♂ the last visible sternite is divided into three lobes, the middle lobe being large and deeply depressed in the middle. The lateral lobes are separated from the middle by a deep cleft on each side.

In ♀ the last visible sternite is widely emarginate in the middle.

Length, 10 mm.; *breadth*, 5 mm. (type-example, ♂).

Distribution. DARJEELING: Gopaldhara, Rungbong Valley (*H. Stevens*). ASSAM: Garo Hills, above Tura, 3,500–3,900 ft., 15. vii. 30, viii. 1927 (*S. Kemp*). Naga Hills (*Doherty*). Patkai Hills (*Doherty*). BURMA: Karen Hills, 3,000 ft., 18–21. v. 1916 (*F. M. Mackwood*). Putao District: Sumprabum (*B. Fischer*).

35. **Agetocera birmanica** Jacoby.

Agetocera birmanica Jac., Entomologist, xxv, 1891, Suppl. p. 63.

Abdomen yellow-brown; rest of underside, legs, head, pronotum and scutellum black. Antennæ pitch-black, sometimes lighter and sometimes the colour of the upper side of the segments darker than that of the lower side; in the male the eighth segment is always lighter; in the female the colour of the whole antenna is black. The colour of the legs may be somewhat lighter in some cases. Elytra always green.

Head with the upper surface and vertex smooth and impunctate; the central area very strongly depressed; the areas behind the bases of the antennæ strongly raised; eyes strongly convex; maxillary palpi comparatively large. (For antennæ see below.) *Prothorax* with the sinuate lateral margins narrower towards the base than in other species of the genus; the hair-bearing pore on each corner of the anterior margin very strongly convex and the corresponding posterior pores more prominent than those of other species; the lateral reflexed margin deep. The upper side smooth and very sparsely covered with very fine punctures, but on the lateral anterior area they are somewhat closer. The lateral depressions are joined to each other across the middle, so that there is a deep transverse channel in front of the basal margin, with the consequence that the front area is more strongly convex than usual. *Scutellum* smooth and impunctate. *Elytra*: the postbasal depression on each elytron much deeper than that of other species; on each side behind the middle there is also an ill-defined depression where the surface is somewhat wrinkled. The whole surface is more closely punctate than in most of the species, the punctures being strongly impressed.

Secondary sexual characters. (1) In ♂ the antenna is modified in the following way: the first segment is large and club-shaped; second much smaller and deeply constricted at the base; third somewhat longer than second; fourth shorter than third; fifth, sixth and seventh progressively become broader at the apex, but about equal in length; apical margin of the seventh slightly emarginate on the upper side. The eighth segment is the largest, nearly straight on the lower surface or the inner side, and the upper surface is strongly expanded, so that the segment is much narrower at the base than at the apex, which is truncate; there is a shallow concavity on the inner side near the apex containing long stiff hairs, but an area near the extreme apex, including the truncate portion, is smooth and shining. On the smooth surface, near the point where the ninth segment is articulated, is the pore to which the internal tube can be traced in a cleared specimen. The internal tube is not like that in the other species; it is many-branched, having irregular ramifications. The stiff long hairs overhang the smooth apical area. The ninth segment is short, articulated by a short stalk to the apical corner of the eighth, triangularly expanded on the upper surface, and rounded towards the apex. The tenth is articulated by a short stalk to the middle of the excised apical surface of the ninth, and is rounded, with the inner side concave and outer convex. The eleventh is cylindrical, much longer than the tenth, and with the apical portion clearly delimited. The hair-covering is much sparser on the seven basal segments, although the hairs near the apices are longer. The eighth is closely covered with hairs; the ninth sparsely covered with stiff erect and long hairs; the tenth and eleventh thickly covered with hairs, which render them more opaque than the other segments.

In ♀ the first two segments are like those of the male. The third and fourth are equal; fifth somewhat shorter than fourth, but equal to sixth or seventh. The eighth is very large and much broadened towards the apex, and expanded on the upper side. The underside shows two surfaces, one along the line of the undersides of the other segments and the other that of the expanded surface; between the two is a fine ridge. On the inner side there is a large concave, smooth and shining area overhung with large hairs. The apex of the expanded portion is plane, smooth and shining. On the inner smooth surface near the place of articulation of the ninth segment is the orifice, which is small in this species and is without a raised rim. The ninth segment is small, articulated to the inner apical angle of the expanded portion of the eighth by a short stalk and raised into a ridge on the upper side. Seen from the side it is laterally flat, with its base concave and the apex rounded, the rounded portion having a concavity in which the tenth segment is articulated. Ninth somewhat shorter than eighth and nearly equal to tenth; ninth and tenth narrower at the base and broadened at the apex; eleventh longer than tenth, with an apical delimited portion. The antenna of the female is longer than that of the male, and segments three to seven are much longer than the corresponding segments of the male; but segments ten and eleven of the male are somewhat longer than those of the female. The female antenna is slightly more hairy than that of the male.

(2) In ♂ the first segment of each tarsus is expanded, ovate in form, and concave on the underside. In ♀ the tarsal segments are normal and not modified.

(3) The last visible sternite of the male abdomen is divided into three lobes, the middle with a deep cavity on the basal portion and with the lateral dividing clefts very deep, so that the apical portion is rounded at each side and almost straight along the margin. In the female the last visible abdominal sternite is somewhat produced at the apex. Seen from above the apex of the abdomen projects beyond that of the elytra.

Length, ♀ (type-specimen), 11 mm.; *breadth*, 5·5 mm. *Length*, ♂, 10·25 mm.; *breadth*, 5 mm.

Distribution. BURMA: Ruby Mines (*Doherty*).

Type in the British Museum.

36. **Agetocera flaviventris** Jacoby.

Agetocera flaviventris Jac., Proc. Zool. Soc. Lond. 1879, p. 788.

Antennæ and abdomen yellow; two apical segments of antennæ blackish; elytra violet or purple, sometimes mixed with green; head, pronotum, underside and legs black; pronotum more shining than the elytra.

Head with the vertex and upper side generally impunctate; the areas behind the bases of antennæ strongly elevated; the central depression very deep; eyes strongly convex. (For antenna see below.) *Prothorax* with the upper surface almost impunctate, but a few fine punctures on the lateral area in front; one or two scattered and very fine punctures may be found on other parts, as though they have strayed away from the lateral areas. Besides the lateral depressions there is in some examples a depression at the base in front of the scutellum and another on the area in front of the middle; in some examples these depressions are very shallow or absent. The reflexed lateral margins deep. *Scutellum* smooth and impunctate. *Elytra* confusedly punctate, the punctures somewhat finer and sparser than those of *A. mirabilis*.

Secondary sexual characters. (1) In ♂ the antenna is modified as follows :—The first segment is thickened and club-shaped ; second small, globular, with a deep constriction at the base ; third slightly longer than second ; fourth somewhat longer than third ; fifth somewhat shorter than fourth ; sixth somewhat shorter than fifth ; seventh equal to sixth in length but broader at the apex. The eighth segment is the largest, ovate in shape, narrower at the base, which is strongly constricted, convex on the inner side, and almost straight on the outer side ; slantingly excised at the apex on the inner side. The ninth segment is articulated at the excised end of the eighth by a short stalk. This segment is smaller, narrower, and rounded at the base, concave on the inner side, gently convex on the outer side, and truncated at the apex. The tenth and eleventh are slender, cylindrical and elongate, the former being somewhat shorter than the latter. The tenth is gently constricted towards the apex and the eleventh has the pointed apical portion clearly delimited. The whole antenna is sparsely covered with fine hairs except the tenth and eleventh, which are more thickly covered ; some of the hairs, particularly those near the apex, are stiff and erect.

In ♀ the first and second segments are as in the male ; third twice as long as the second and equal to the fourth ; fifth somewhat shorter than fourth ; sixth or seventh equal to fifth. The eighth is longer but not enlarged ; ninth is shorter and shows a concavity that is much feebler than that of the male. The tenth and eleventh are similar to, but shorter than those of the male. Each of the segments from the third to seventh is longer than the corresponding segments of the male. On the whole the antenna of the male is equal in length to that of the female.

(2) In ♂ the first segment of the front and middle tarsus is broader than the corresponding segment of the hind tarsus. This character does not occur in the female.

(3) In ♂ the last visible sternite has two depressions, one on the basal part and the other on the apical, the latter being larger and deeper. In ♀ the last visible sternite is emarginate at the apex and the apex of the abdomen projects beyond that of the elytra.

Length, ♀, 10·5 mm. ; *breadth*, 6 mm. ♂, *length*, 9 mm. ; *breadth*, 4·5 mm.

Distribution. THE HIMALAYAS : Sikkim. BURMA : Pegu.

Jacoby described this species from one female example, but later other examples were discovered, and among these is a male. There are six examples, including the male, in the collection of the British Museum, but none of these is the type-specimen, which is probably in the Zoological Museum of Harvard University.

37. **Agetocera manipuria** Maulik.

Agetocera manipuria Mlk., Proc. Zool. Soc. Lond. 1932, p. 954.

This is a more slender-looking species than the others recorded here. Abdomen brown; antennæ pitch-black; head, prothorax, scutellum, underside and legs black; elytra deep blue.

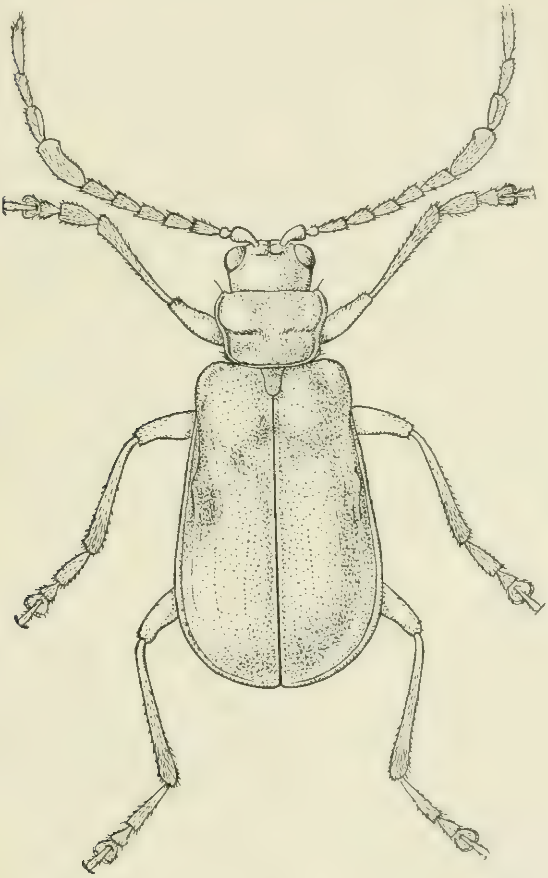

Fig. 44.—*Agetocera manipuria* Maulik.

Head with the upper surface and vertex smooth and impunctate; the central depression very deep; areas behind the bases of antennæ well defined. Eyes strongly convex.

Antenna long, almost reaching the apical area of the elytra (for structure see below). *Prothorax* with the upper surface smooth and impunctate, but for a few fine punctures on the lateral area in front. The lateral depressions deep, but not joined in the middle as in *A. birmanica*. The lateral reflexed margin not so deep as in *A. birmanica* or *A. flaviventris*. *Scutellum* with the surface smooth and impunctate. *Elytra*: the postbasal depressions fairly deep; the lateral longitudinal ridge strongly raised; median depression on each side fairly deep. The whole surface is closely and confusedly punctate, the punctures being closer on the basal area than on the apical.

Secondary sexual characters. (1) The antenna of ♂ is modified as follows:—The first segment is large and club-shaped; second small and rounded; third about three times longer than second; fourth shorter than third; fifth equal to fourth; sixth and seventh somewhat thicker and about equal to each other. The eighth segment is the largest, elongate-ovate, somewhat concave on the inner and lower, and convex on the outer and upper sides. On the concave surface there is a large, smooth, and shining area, which is produced to a blunt point near the apex. This produced part contains the orifice which leads to the tube inside the segment. The ninth segment, though thickened, is much smaller and has a similar smooth and shallowly concave area on the lower surface. The tenth and eleventh are slender, cylindrical, and more thickly covered with hairs, the former being shorter than the latter, which has a specially delimited apical portion.

(2) The last visible abdominal sternite of ♂ is divided into three lobes, the middle being the largest and having a deep concavity. It is separated from the lateral lobes by a cleft on each side.

(3) The first segment of the front and middle tarsus of ♂ is slightly broader than the corresponding segment of the hind tarsus, but the latter is longer than either of the other two. Though broader they are not so pronounced as the corresponding segments in *A. birmanica*.

Length, 10 mm.; *breadth*, a little more than 5 mm.

Distribution. MANIPUR (*Doherty*).

Described from two male examples, the female being unknown to me.

Type in the British Museum.

Genus **MERISTA** Chapuis.

Merista Chapuis, Gen. Col. xi, 1875, pp. 224 & 228; Harold, Stett. Ent. Zeit. xli, 1880, p. 144; Weise, Tijdschr. Ent. lxv, 1922, p. 68.

GENOTYPE, *Galleruca sexmaculata* Kollar & Redtb.

Although Chapuis erected this genus on species collected by von Hügel in Kashmir, no species was designated as the genotype.

Body fairly large, oblong, somewhat widened behind the middle; seen in profile the highest point is just behind the middle, sloping down in front and more abruptly behind. General colour dark to light brown, with metallic blue-black or black bands across elytra; sometimes these bands become larger, and in other examples they are reduced to a series of transverse spots, thus affording a large range within which many varieties may be formed.

Head exserted, broad, but fully within the emarginate front border of the prothorax; upper surface smooth and generally impunctate; eyes very strongly convex; inter-antennal space deeply longitudinally channelled; frontal tubercles oblong, well defined, but not prominently raised; area behind them deeply and sometimes transversely excavated, the excavation containing a few hairs arising from a surrounding rough surface, which varies slightly. On the outer side of, and posterior to the excavation, is a perfectly round spot, often lighter in colour, containing one erect hair; from this round spot along the inner margin is a longitudinal channel, which is sometimes very deep; sometimes the inner margin of the eye with a few fine erect hairs; clypeus large, a longitudinal elevation in the middle, on each side of which is a shallowly concave rough area containing a few fine erect hairs, in front transversely raised; labrum fairly large, without completely covering the mandibles, broader than long, with the front margin emarginate, covered with longish erect fine hairs; mandible large; maxillary palpus long, with the penultimate segment thickened and the apical segment small and conical; labial palpus shorter but visible from upper side; all palpi covered with fine longish erect hairs. Antenna long, slender, in some cases reaching to apex of elytron, and in the species with comparatively larger bodies extends to about the middle of elytron; first three segments always shining, with a few scattered hairs on their surface; fourth to eleventh matt, very closely covered with short bristly hairs; first segment long, club-shaped; second very short; third always longer than second, sometimes twice as long, but always shorter than first; fourth three or four times longer than third, always longer than first; all the non-shining segments with the apex wider than the base, and some of them sometimes laterally expanded; apical segment thinner, always bluntly pointed, the pointed end looking like a separate segment; the narrow rounded base of a non-shining segment is articulated to the broad apex of the next segment in such a manner that in one aspect the apices of these segments seem to project on the inner side. In some species the male has the antennæ longer than those of the female and the flattened condition more accentuated. *Prothorax* broader than long, sometimes tending to the squarish; front margin widely emarginate, with the anterior angles produced forward, thickened, and containing a seta-bearing pore; lateral margins straight or slightly sinuate; posterior lateral angles almost right angles, each with a seta-bearing pore; on the inner side of each of these angles the surface of pronotum slightly swollen in some species; basal margin widely arched, being slightly drawn forwards; pronotum smooth, shining, in some species with shallow depressions; free of large punctures, although one or two may occur; under a high magnification very minute scattered punctures are seen. *Scutellum* triangular, with the apex rounded and the surface smooth, shining, impunctate except for a few scattered minute punctures visible under a higher magnification. *Elytra* broader at base than the prothorax; humerus strongly convex, always impunctate; lateral margin rounded; upper surface confusedly punctate, with finer and coarser punctures, the latter somewhat sparsely distributed, with a tendency to an arrangement in longitudinal lines, former distributed in the interstices of latter; punctures with dark centres on lighter coloured background. *Underside* shining, smooth, sparsely covered with fine hairs; epipleuron of almost equal width throughout except towards the apex, where it narrows slightly, surface with a few punctures. Legs long and slender; tibia somewhat laterally flattened, widening at the apex, where it is thickly covered with hairs, hind tibia very slightly bent inwardly; first segment of any tarsus always longer than the following two segments together, first segment of hind tarsus slightly longer than the corresponding segment of either the front or the middle tarsus, third segment of any tarsus strongly bilobed, claw-segment long and projecting much beyond the bilobed segment; claws bifid, the inner lobe well developed.

Distribution. THE HIMALAYAS, through the Assam ranges to Yunnan.

Key to the Species.

1. Elytra uniformly red-brown to lighter brown; head, pronotum, legs metallic green or blue .... *M. dohrni* (Baly), [p. 143.
No such combination of colours .... 2.

2. Underside unicoloured .... 3.
   Underside not unicoloured .... 6.
3. General colour metallic violet-blue-black, fairly shining .... 4.
   In the general colour the black predominates; subnitid; each elytron with three fine brown bands .... *M. oberthüri* Jac., [p. 147.
4. Suture always stained with the metallic colour; apical brown area on each elytron without a dark spot .... *M. sexmaculata* K. & R., [p. 145.
   Suture not stained with the metallic colour; with an apical dark spot on each elytron. 5.
5. Transverse metallic bands on elytra not broken up .... *M. fraternalis* (Baly), [p. 146.
   Transverse metallic bands broken up into a series of spots .... Var. *yunnanensis* v.n., [p. 146.
6. Elytra with a marginal black band at base; each elytron without a dark spot on the apical area .... *M. trifasciata* Hope, [p. 147.
   Elytra without a marginal basal band; apical area of elytron with a dark spot .. 7.
7. Pronotum without a black patch, sometimes with two round spots; antennæ less flattened; elytral punctures finer and sparser; length, 11·5–13·5 mm.; breadth, 7–8 mm. .... *M. fallax* Harold, [p. 148.
   Pronotum with a black patch (sometimes reduced into two spots); antennæ more flattened; elytral punctures well impressed, more crowded; length, 10–11·5 mm.; breadth, 5·5–6·5 mm. ...... *M. quadrifasciata* Hope, [p. 149.

38. **Merista dohrni** (Baly).

Leptarthra dohrni Baly, Journ. of Ent. i, 1861, p. 203; Duvivier, Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. xlvii; Jacoby, Proc. Zool. Soc. Lond. 1883, p. 406; id., Ann. Mus. Civ. Genova, xxxii, 1892, p. 962.
Merista rufipennis Harold, Stett. Ent. Zeit. xli, 1880, p. 144.
Merista cardoni Duvivier, Ann. Soc. Ent. Belg. xxxvi, 1892, p. 440.

Oblong, somewhat constricted behind the shoulders, broadening slightly behind the middle. Seen in profile convex behind the middle, but not very strongly so. Elytra shining red-brown with a faint but distinct purplish sheen; head, prothorax, scutellum, underside and legs greenish, with bronzy sheen; abdomen sometimes shares the colour of the elytra and sometimes has the two chief colours mixed; in some cases the green may be replaced by bright metallic blue; the first three segments of antenna have the metallic colour, the rest brown, becoming somewhat lighter as the apex is approached. Elytral colour varies from dark red-brown to a much lighter shade.

Head: interocular area depressed; behind the depression and closer to the eye on each side a round, slightly depressed light brown spot; clypeus raised, impunctate; labrum with the apical margin deeply emarginate, lighter in colour, with long fine hairs. Antenna long, slender, almost reaching the apical area of the elytra ; first segment thickened, club-shaped ; second very small, almost half of third ; fourth longer than third ; from fourth to apex covered with pubescence, and gradually becoming somewhat thinner ; fifth to tenth nearly equal to one another ; eleventh longer, somewhat pointed. *Prothorax* : front margin widely emarginate ; hind margin almost straight ; anterior lateral angles bluntly conically produced forwards, the usual seta arising from a pore on the upper surface of the produced part ; sides very finely margined, sometimes not so ; each posterior lateral angle, from which arises the usual seta, rounded, and sometimes swollen on the upper surface. Upper surface uneven but smooth, very finely and scatteredly punctate ; in the middle near the base a deep depression, in front of it a larger shallow one, on each side another depression, which is sometimes continued to the edge ; the depth and extent of these depressions vary. *Scutellum* with the surface sometimes wrinkled and sometimes perfectly smooth. *Elytra* much broader at base than the prothorax ; shoulders pronouncedly raised ; basal area behind the scutellum faintly convex ; sparsely punctate, the punctures generally fine, sometimes mixed with slightly larger ones, often arranged in double rows, which are more regular on the basal area, sometimes almost obliterated on the apical and lateral areas ; lateral margin with a fine ridge. *Underside* shining ; clothing of hairs extremely sparse, but thicker on the apical portions of tibiæ. Claws bifid, the inner branch sometimes very small ; this condition sometimes makes it difficult to determine the position of this species in the groups.

Length, 13–15 mm. ; *breadth*, 6·5–7·5 mm.

Distribution. THE HIMALAYAS : Darjeeling. ASSAM : Khasi Hills, Manipur. BURMA : Ruby Mines (*Doherty*).

In the CHRYSOMELIDÆ there are other species from our regions having this type of coloration and similar form of body. For example, *Parlina indica* Hope, also from the Himalayan regions, which belongs to the subfamily CHRYSOMELINÆ (1926, p. 47), and which is easily confused with *Merista dohrni*. In *P. indica* the roots of antennæ are wide apart, but in *M. dohrni* they are close together. Another species is *Leptarthra abdominalis*, which can be distinguished from *M. dohrni* by its appendiculate claws, general smaller size, and deeper elytral punctures. *L. abdominalis* also occurs in the Himalayan regions. The superficial resemblance of these species is remarkable.

39. **Merista sexmaculata** Kollar & Redtenbacher.

Galleruca sexmaculata Kollar & Redtb., in Hügel, Kaschmir und das Reich der Siek, iv, 1848, p. 555, t. 27, f. 5.
Merista sexmaculata Chapuis, Gen. Col. xi, 1875, pl. 127, f. 1; Harold, Stett. Ent. Zeit. xli, 1880, p. 144; Duvivier, Ann. Soc. Ent. Belg. xxxvi, 1892, p. 441; Weise, in Junk & Schenkling, Col. Cat. pt. 78, 1924, p. 84.

Deep violet-blue-black; on the elytra the violet tint is dominant, but in other parts not so; on each elytron three brown bands, one postbasal, another postmedian, and the third apical; the postbasal band does not go beyond the humerus, being separated from a small marginal brown patch below the humerus by a thin strip of the metallic colour; even in the most melanic examples this marginal brown patch is not covered by the metallic colour, while only in two cases out of eighty-three examples before me does the metallic strip show signs of disappearing, and in one case it has altogether disappeared; the postmedian reaches the margin, but does not always stain it brown; the apical brown area is always without a dark spot; extreme lateral margin brown to dark brown along the basal part, then having the metallic colour, and the apical margin brown; suture always stained with the metallic colour. When the brown bands increase longitudinally the metallic ones correspondingly decrease.

Head: base round each eye somewhat defined, well impressed; channel round inner margin of eye; round spot behind eye dark brown. Antenna: fifth segment shorter than fourth; fifth, sixth, seventh nearly equal; eighth very slightly shorter than seventh; eighth and ninth nearly equal; tenth and eleventh thinner; tenth almost equal to ninth; eleventh pointed, longer than tenth. There may be slight variations in the relative lengths of the segments of antenna. *Prothorax* tending to be squarish, although broader than long; posterior angles rounded; upper surface with the background finely shagreened, scattered over with fine punctures, with a faint median longitudinal line; on each side of this line near the middle one strongly indented point, one depression in front of base, one very shallow one across in front, one in the middle of the lateral area; each lateral margin deeply channelled, the produced part at each anterior angle separated by this channel. *Scutellum* with the background surface shagreened and with a few fine punctures. *Elytra*: punctures fairly closely placed, longitudinal seriation more marked on the basal area, two longitudinal ribs on each elytron faintly discernible, the finer punctures more prominent on the basal area; lateral margin narrowly reflexed, the reflexed part rounded.

Length, 10–12 mm.; *breadth*, 5·75–6 mm.

Distribution. WESTERN HIMALAYAS: Kashmir (*Hügel*); Muktesar, 7,500 ft., 12–30. v. (*Sen*); ix. (*Fletcher*); Mussooree, viii., ix., x. (*Mackenzie*); Almora (*Champion*); Naini-Tal (*Champion*); v., vi. (Ind. Mus.); Sunderdhunga Valley, 8,000–12,000 ft. (*Champion*). EASTERN HIMALAYAS: Kurseong, 21–29. v. (*Annandale*); 14. viii. (*Jenkins*); Darjeeling, 11–20. iii. (*Hingston*); 19. ix., at light in house (*Brunetti*); v. (Ind. Mus.); 9. vi. (Ind. Mus.); Gangtok, 10. ix. (Ind. Mus.); Gopaldhara, 4,720 ft., 28. v. (*Stevens*). ORISSA: Chandipore (*Gravely*).

Type, location unknown to me, probably in the Vienna Museum.

40. **Merista fraternalis** (Baly).

Leptarthra fraternalis Baly, Cist. Ent. ii, 1879, p. 455.
Merista fraternalis Weise, Tijdschr. Ent. lxv, 1922, p. 68.

I regard Baly's *fraternalis* as a good geographical race of *M. sexmaculata*, which it resembles closely, but differs in having, (1) a dark spot on the apical brown area on each elytron, (2) the brown bands on elytra more dominant, (3) the elytral margins all round entirely brown, (4) the suture brown, (5) no lateral connection between the basal metallic band and the next metallic one, (6) the third segment of antenna comparatively longer, (7) the shagreened character of the background of the surface of pronotum and scutellum at its minimum, (8) the seriation of the larger punctures more marked, and the punctures themselves more sparse.

Length, 10·5–12·25 mm.; *breadth*, 5·5–8 mm.

Distribution. ASSAM: Cherrapunji, 4,400 ft., 2–8. x. 1914 (*S. W. Kemp*); Shillong, v. 1924 (*Fletcher*), v., vi., ix., x. 1918 (*Fletcher*); Mishmi Hills, 2,000 ft., 8. iii. 1928 (*Percy Sladen Exp.* 1929, Brit. Mus.); Manipur (*Doherty*). BURMA: Seinghku Valley, Wang, 28·5° N., 97·35° E., 5,000 ft., 19. v. 1926 (*F. Kingdon Ward*); Ruby Mines (*Doherty*). WESTERN CHINA: between Tengyueh and Tali Fu, Yunnan (*J. C. Brown*), three examples in the Indian Museum from this locality.

Type in the British Museum.

Var. **yunnanensis** nov.

This variety resembles *M. fraternalis*, but differs in having the brown colour dominant on the elytra, with the metallic colour considerably reduced. For example, the blue-black on the basal margin of elytra is broken up, its posterior margin being ill-defined, and there is also a separation from the lateral margins of scutellum. The metallic bands across each elytron are broken up into a series of spots, some of these disappearing altogether. It must be noticed, however, that the apical spot still exists in the specimens before me.

Length, 11–12 mm. ; *breadth*, 6–7·5 mm.
Distribution. WESTERN CHINA : Yunnan.
Type in the British Museum. Three examples.

41. **Merista oberthüri** Jacoby.

Merista oberthüri Jac., Proc. Zool. Soc. Lond. 1883, p. 404, pl. xlv, f. 10.

Blue-black ; not shining ; each elytron with three brown slender bands: one postbasal, which does go beyond a longitudinal line drawn along humerus; another median, which in some cases just reaches the margin, though usually it falls far short of it ; behind the median and not far from it is the third band, which never reaches the margin. The longitudinal distance between the postbasal and median bands is greater than that between the median and apical. Epipleuron, lateral and apical margins of elytra brown ; suture shares the general colour of body except for the apical portion between the third band and the sutural angles. Front edge of clypeus and of labrum sometimes brown.

Head : base on which an eye is placed raised ; channel between frontal tubercles very deep ; upper surface impunctate, the background finely shagreened. Antenna extending to the middle of elytron or just beyond. *Prothorax* : background finely shagreened, with the sides rounded, not margined, slightly concave in the middle, excavations on the pronotal surface somewhat deeper than those of *M. sexmaculata*. *Scutellum* with finely shagreened surface and one or two punctures. *Elytra* with surface finely shagreened, with sparsely distributed fine punctures, and without any coarser punctures, the fine punctures not tending to arrange themselves in longitudinal series. *Underside* : epipleuron more shining, with the surface convex and a few scattered punctures.

Length, 9·5–11·5 mm. ; *breadth*, 5–6·5 mm.
Distribution. TIBET : Tatsienlon (*Mgr. F. Biet*).
Type location unknown to me ; *paratype* in the British Museum.

42. **Merista trifasciata** Hope.

Galleruca trifasciata Hope, in Gray, Zool. Miscell. 1831, p. 28.
Galleruca spilota Hope, in Gray, Zool. Miscell. 1831, p. 28.
Merista flaviventris Harold, l. c., p. 143 ; Duvivier, l. c., p. 442.
Merista variabilis Har., l. c., pp. 142 & 144 ; Jacoby, Proc. Zool. Soc. Lond. 1883, p. 406.

Head, antennæ, a broadish band across basal margin of elytra, a median band across each elytron, a postmedian band (these two bands often broken up into spots), underside (abdominal sternites excepted) and legs black ; in certain lights a slight deep bluish tint in the black ; rest of the body light to dark brown ; in many cases the pronotum much lighter than the brown of the body. On the apical brown area of each elytron there is no black spot. The basal marginal elytral band is always present, even if it be in a reduced condition, when other elytral markings have altogether disappeared. In its unreduced condition it extends laterally to the humerus, which it partly covers, but it never covers the extreme margin below. Longitudinally it hardly extends beyond the transverse line drawn through the apex of the scutellum. The median band is broken up into four spots on each elytron, the third from the suture being the largest, the fourth the smallest below it. The postmedian is usually broken up into four equal-sized spots. On the under surface the basal part of the first abdominal sternite is always black. The reduction in the markings takes place without any uniformity ; any of the markings may disappear without affecting any other part. In the type example the basal marginal band is well developed ; the median and postmedian series of spots exist without reduction.

Head : compared with *M. quadrifasciata* the eyes not so strongly convex ; fourth to eleventh segments of antenna not so flattened. *Pronotum* : squarish, although broader than long ; surface near the posterior angle least swollen ; depressions on upper surface at their minimum ; smooth, hardly punctate, except for four or five punctures on the margin near the anterior lateral angles, and very sparsely distributed fine punctures, which can be seen under a high magnification. *Elytra* : compared with *M. quadrifasciata* punctures much sparser, less strongly impressed ; owing to this the elytral surface looks much smoother and more polished.

Length, 10·5–13·5 mm. ; *breadth*, 6–8·5 mm.

Distribution. WESTERN HIMALAYAS : Kumaon, Almora, Sunderdhunga Valley, 800–1,200 ft. (*H. G. Champion*) ; Muktesar, vii. (*Sen*) ; Ramgarh, vii. 1913, on apple-tree (*H. T. Gill*) ; Naini Tal, v., vi. (Ind. Mus.) ; Mussooree, ix., x. (*Mackenzie*) ; Hazara, Dungagali, 8,000 ft., v. 1915 (*Fletcher*). EASTERN HIMALAYAS : Sikkim, Mungpu ; Ghoom, 7,200 ft., iv. 1918 (Ind. Mus.) ; Lachen, 9,000 ft., 26. iv. 1924 (*Hingston*) ; Darjeeling, 20. v. 1917 (*Brunetti*).

Type in the British Museum (Nepal), l., 11·5 mm. ; b., 6·5 mm.

43. **Merista fallax** Harold.

Merista fallax Harold, Stett. Ent. Zeit. xli, 1880, p. 143 ; Duvivier, Ann. Soc. Ent. Belg. xxxvi, 1892, p. 442.

This is a definite race, and intermediate between *M. quadrifasciata* and *M. trifasciata* Hope, differing constantly from both in some characters. It differs from *M. trifasciata* (1) in not having a basal marginal elytral band, (2) in having sometimes two pronotal round spots, often vestigial, (3) in having two round spots on each elytron, one on each side of the humerus (sometimes altogether absent), (4) in having the median and postmedian bands more often well formed, (5) in having one spot on the apical area of the elytron, (6) in having the elytral sculpturing (though similar) slightly more pronounced, (7) in having medio-lateral patches on abdominal sternites (sometimes obsolescent or absent).

It differs from *M. quadrifasciata* (1) in being slightly but definitely larger, (2) in having the elytral sculpturing less accentuated and sparser. In one case, a large female (l., 14·5, b., 8·5 mm.) from Mishmi Hills, all the black parts have disappeared (except the two series of transverse elytral spots), but not without leaving traces where the black should have been.

Length, 11·5–13·5 mm. ; *breadth*, 7–8 mm.

Distribution. EASTERN HIMALAYAS : Sikkim, Singhik, 4,000 ft., 23. iv. 1924 (*Hingston*) ; Darjeeling, 5,000 ft., 14. iii. 1924 (*Hingston*) ; Gantok, 6,000 ft., 22. iv. 1924 (*Hingston*) ; Lebong, 5,000 ft., ix. 1908, vi. 1909 (*Lefroy*) ; Pashok, 3,500 ft., 26. v.–14. vi. 1916 (*F. H. Gravely*) ; Kalimpong, 24. iv.–10. v. 1918 (*F. H. Gravely*) ; Kurseong ; Rungbong Valley, Gopaldhara ; Phoobsring. BENGAL : Buxar Duars, v. 1907 (*D. Nowrojei*). ASSAM : Mishmi Hills, 2,000 ft., 4. iv. 1928, 3,500 ft., 11. v. 1928 (Percy Sladen Exp., Brit. Mus.).

Type location unknown to me.

44. **Merista quadrifasciata** Hope.

Galleruca quadrifasciata Hope, in Gray, Zool. Miscell. 1831, p. 28.
Merista quadrifasciata Baly, Cist. Ent. ii, 1879, p. 454, Ann. ; Harold, Stett. Ent. Zeit. xli, 1880, p. 144.
Galleruca interrupta Redtenbacher, in Hügel, Kaschmir und das Reich der Siek, iv, 1848, p. 553, t. 27, f. 4.
Merista interrupta Baly, Cist. Ent. ii, 1878, p. 382 ; Second Yark. Mission, 1878, p. 35 ; Duvivier, Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. xlvii.

Head, antennæ, a transverse patch on pronotum, scutellum, four transverse bands (variable, sometimes broken up into spots) on each elytron, underside of thoracic segments, transverse patch on each side of each abdominal sternite (very variable, sometimes joined to form transverse bands, especially on the apical sternites), and legs black or pitch-black ; the rest of the body light to dark brown. The ordinarily visible basal margins of elytra are never black, and the margins all round are always brown. The pronotal patch may be well defined, in some cases it shows signs of division, sometimes complete, in the middle; each of the divided portions may again be subdivided into two parts; among the large number of examples before me there are two round spots on the pronotum in two cases only. The band on the apical portion of each elytron is never divided; although it may be reduced to a speck no example has yet been found in which it is entirely absent. Each of the median and postmedian bands on the elytron always shows signs of a division into three, and the basal into two; even in the most melanic cases, in which the bands are long, evidence of the divisions exists. The division of the postmedian band into three is more often complete than is the case with the median. Although, generally speaking, when an example shows extreme melanism all black parts tend to attain the maximum, yet there is no uniformity in the process; some of the markings may be very black and cover more space, while others may still remain in a comparatively reduced condition. In the reverse cases there is also no uniformity among the black parts in reduction.

Head: excavation in the interocular slightly rough; eyes very strongly convex, without the base. Antenna very long, fourth to tenth segments flattened, fourth broadest, tenth narrowest; in some aspects tenth may not seem flattened; hair-covering very dense. *Prothorax* with lateral margins almost straight or with very slight sinuation; surface in front of posterior lateral angle swollen; depressions on the general surface very slight or almost absent; the fine punctures very sparse and extremely fine, seen only under a high magnification. *Elytra*: punctures well impressed, fairly closely placed, seriation on the basal area not well indicated; in some examples minute spots with dark centres among the strongly impressed punctures.

Length, 10–11·5 mm.; *breadth*, 5·5–6·5 mm.

Distribution. WESTERN HIMALAYAS: Kashmir, Ladak; Kumaon, Bhim Tal, 4,500 ft., 22–27. ix. (*Annandale*), Almora, 5,500 ft., 11. x.–31. xii. (*Paiva*), 1–18. iii. (*Paiva*), 11–12. vii. (*Paiva*); Simla, viii.; Naini Tal, v. (Ind. Mus.); Nepal, Pharping, Gowchar, Soondrijal; Ranikhet; Muktesar, ix. (*Fletcher*), 20. x. (*Mackenzie*). Mussooree, 7,000 ft., x. (*Lefroy*); Dehra Dun; Murree, 7,500 ft., vi. (*Dutt*); Kangra Valley, 4,500 ft., vii. x. (*Dudgeon*); Abbottabad, 4,120 ft., 6–10. x. (*Dutt*). UNITED PROVINCES: Jolikoti, 5–6. vi., on apple-fruit (*H. H. Po*). EASTERN HIMALAYAS: Rungbong Valley, Gopaldhara (*H. Stevens*). Mungpu.

Hope's *type* in the British Museum.

Location of the type of *interrupta* unknown to me, probably in the Vienna Museum. From a study of Redtenbacher's figure I have no hesitation in saying that *interrupta* is a synonym of Hope's *quadrifasciata*.

Geographical distribution. With regard to the species of this genus, from the localities noted above the following facts emerge :—(1) *M. sexmaculata* has not yet been recorded from the Eastern Himalayas ; (2) *M. fraternalis* has not yet been recorded from Western Himalayas—it spreads from Assam, through Burma to Yunnan, where a different variety occurs ; (3) *M. quadrifasciata* occurs both in the Western and Eastern Himalayas, but there are more specimens from the former region than from the latter ; *M. trifasciata* also occurs both in the Western and Eastern Himalayas, but *M. fallax* has not yet been reported from the Western Himalayas, it spreads from the Eastern Himalayas to Assam, perhaps also beyond. The fact that one form in each group of species (namely, *fraternalis* in the *sexmaculata*-group and *fallax* in the *trifasciata*-group) does not occur in the Western Himalayas is significant. It should be observed that they occur in high altitudes as well as in the plains, although only one or two examples have been captured in the plains.

Genus **HOPLASOMA** Jacoby.

Hoplasoma Jac., Notes Leyd. Mus. vi, 1884, p. 233.
Haplosoma Allard, Ann. Soc. Ent. France, (6) viii, 1888 (89), p. 326 ; Jac., Ann. Soc. Ent. Belg. xl, 1896, pp. 271, 273 ; Entomologist, xxiv, 1891, Suppl. p. 36 ; l. c., xxxii, 1899, p. 82 ; Ann. Soc. Ent. Belg. xlvi, 1903, p. 120, and xlviii, 1904, p. 396.
Hoplosoma Baly, Trans. Ent. Soc. Lond. 1889, p. 308.

GENOTYPE, *Hoplasoma apicalis* Jacoby (Celebes).

The name of the genus has been spelt by previous writers in all possible combinations of the first two vowels—a process to which the word lends itself easily—but it should be noted that the correct spelling is that which was first used by the founder of the genus, and this is adopted here.

In erecting the genus Jacoby described only one species.

Body oblong, narrow, parallel-sided. In some cases there is a slight constriction in the middle. A characteristic feature of this genus is that the prothorax is much narrower than the base of the elytra.

Head exserted, somewhat constricted, and narrower than the prothorax at the base ; vertex convex, smooth. Anterior to this convex area, and between the eyes, is a transverse impressed line intersected in the middle by a longitudinal impressed line on either side of which the areas are somewhat raised ; the narrow interantennal area is raised into a ridge. Clypeus triangular, almost always raised. Labrum broader than long, with the apex slightly emarginate, the surface above the emarginate edge raised, often covered with long hairs. Maxillary palpus four-segmented, basal segment short, second club-shaped, third much thickened, fourth small and conical. Labial palpus three-segmented, basal segment club-shaped, second thickened, third small and conical. Antenna long and slender, usually about half or three-quarters of the body, but in some cases longer ; first segment long, club-shaped and outwardly bent ; second shortest ; there is a slight difference in the lengths of the third and fourth segments ; from fifth to eleventh as a rule the segments gradually become progressively shorter ; in some cases the last three segments are shorter and more slender ; in some male forms the last three segments are thickened and expanded. With the exception of the first two segments the antennæ are thinly covered with fine hairs. Eyes generally large and strongly convex. *Prothorax* quadrate or very slightly broader than long, sometimes slightly broader anteriorly, always narrower than the base of the elytra ; a shallow transverse depression in front of the basal line ; area in front of this depression generally convex ; sides margined, somewhat oblique, sometimes strongly convex in front, with a consequent constriction at about the middle ; each of the four corners with a fine seta arising from a pore ; the anterior and posterior margins straight. *Scutellum* triangular. *Elytra* : in most of the species the surface smooth and confusedly punctate, the punctures being fine. In some species a slight constriction about the middle and along the side a sharp ridge which appears very prominent because it lies in a long lateral concavity. The surface is generally shining, but in some examples within the same species it may be opaque, while in others the elytra are opaque, the head and pronotum remaining shining. Humerus prominent and convex. *Underside* thinly covered with fine hair. Epipleuron extremely narrow from the base to the apex. Legs long and slender ; owing to the narrowness of the body the slender appearance of the legs is more accentuated. Hind legs somewhat longer than the front or middle ; femur and tibia of hind leg longer than the corresponding segment of front or middle leg ; apex of any tibia without a spine ; the first segment of the hind tarsus is longer and the second segment more slender and slightly longer than the corresponding segments of the other tarsi ; in all cases it is simple, not bilobed ; third tarsal segment in all legs bilobed, and the claw-segment projects much beyond ; claws bifid.

Secondary sexual characters of ♂ (they may occur singly or in any combination). (1) On the underside of abdomen there may be a pair of processes arising from the second sternite. In the genotype there are two pairs, the first and smaller pair arising from the first sternite and the second and larger from the second segment. The structure of these processes varies in different species, and in some they may be altogether absent *. (2) The last visible sternite has a specialized area which slopes from the base to the apex, having well-defined boundaries and the surface rough. The last visible tergite, with a slight apical emargination, bends over the sternite to a certain extent, or there may be other modifications in the last visible sternite and tergite. (3) The four apical segments of the antenna may be dilated. (4) The first segments of all tarsi may be broader than the corresponding segments of female tarsi. (5) The first segment of the hind tarsus may be much dilated (this feature occurs in certain species not known from our regions, but such a character might occur in species yet to be discovered). (6) The second segment of the hind tarsus may be exceptionally long.

In ♀ in some cases there is a depression on the last visible sternite; in other cases the antenna may be more hairy.

Distribution. INDIA. CEYLON. BURMA. CELEBES. SUMATRA. BORNEO. NEW GUINEA.

Key to the Species.

1.	The antenna longer than the body	*H. longicornis* All., [p. 154.
	The antenna not longer than the body	2.
2.	Each elytron with one postbasal and two postmedian spots, the latter sometimes coalescing	*H. sexmaculata* (Hope), [p. 154.
	Elytra without spots or markings	3.
3.	Each elytron with a distinct lateral longitudinal costa	4.
	Elytron without a costa	5.
4.	Underside entirely brown; apical sutural angle of the elytra not produced	*H. ceylonensis* Jac., [p. 155.
	Underside of abdomen black; apical sutural angle with a tooth	*H. costatipennis* Jac., [p. 157.
5.	Four apical segments of antenna distinctly thickened, more so in the male	*H. dilaticornis* Jac., [p. 158.
	Four apical segments of antenna not thickened at all in either sex	6.
6.	♂ abdominal processes short, flat; the last visible sternite with the sloping apical surface depressed and with a prominent median elevation. ♀, the last visible sternite without a cavity near the apex ..	*H. nilgiriensis* Jac., [p. 160.
	♂ abdominal processes long, rounded; the sloping surface of the last visible sternite not depressed and with a median elevation not very prominent. ♀, the last visible sternite with a cavity near the apex	*H. unicolor* Illiger, [p. 161.

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* *Comparison with other groups of Coleoptera.*—In the family MORDELIDÆ similar paired structures occur in the male of species of the genus *Anaspis*; but they arise either from the third or the fourth sternite.

45. **Hoplasoma longicornis** Allard.

Haplosoma longicornis Allard, Ann. Soc. Ent. France, (6) viii, 1888 (89), pp. 327 & 330.

Entirely yellow-brown, the seven apical segments of antenna pitch-brown.

Head: the frontal carina is not truncate between the antennæ as in other species of the genus, but very flattened. The antenna is much longer than the insect, and this feature is characteristic of the species. *Prothorax*: the pronotal transverse impression is large and deep on each side, but not uniting in the middle. *Elytra* rounded at the apical extremity and closely punctate.

Length, 7 mm.; *breadth*, 2·33 mm.

Distribution. INDIA.

I have not seen this species. The above is a transcription of the original description of Allard in French. Allard gives "Inde orientale" as the habitat, but it may not lie within our faunistic limits.

46. **Hoplasoma sexmaculata** (Hope).

Auchenia sexmaculata Hope, in Gray, Zool. Miscell. 1831, p. 29.
Haplosoma sexmaculata Jacoby, Entomologist, xxxii, 1899, p. 82.
Haplosoma bifasciata Allard, Ann. Soc. Ent. France, (6) viii, 1888 (89), p. 327.

General colour dark brown to pale yellow mixed with grey; the following parts pitch-brown to black: antennæ, eyes, scutellum, an antemedian and two postmedian patches on each elytron, the whole of the underside from the mesosternum to apex of the abdomen, and legs; in the lighter specimens the dark parts are pitch-brown, three or four basal segments of antenna and the basal halves of the femora yellow-brown; in some cases the basal portion of the scutellum yellow-brown; the elytral patches vary in size; all of them have the boundaries ill-defined; of the postmedian patches the outer one is almost always larger than either of the other two; the postmedian patches may be fused, but in such a way that they bear evidence of the process of fusion; sometimes all the patches tend to become elongate. In one example before me the three elytral spots are small and almost equal to each other in size.

Head with the vertex smooth, impunctate; eyes comparatively small and not strongly convex. Antenna very slender, reaching to the apex of the body; third segment distinctly shorter than fourth; fifth to eighth almost equal in length; last three equal to each other. *Prothorax* somewhat broader than long, slightly constricted in the middle; the median transverse depression very shallow and wide, so that the whole of the upper surface appears concave; upper surface impunctate, shining. *Scutellum* sharply triangular, with the surface smooth and impunctate. *Elytra* much broader at the base than the prothorax, narrow, parallel-sided; upper surface confusedly punctate and transversely wrinkled; this wrinkled appearance, though not very strong, is quite distinct. *Underside*: there are no secondary sexual characters such as are found in several species of the genus.

Length, 8·5 mm.; *breadth*, 3·5 mm.

Distribution. NORTH-WEST FRONTIER PROVINCE. WESTERN HIMALAYAS: Simla, 7,000 ft., 12–13. v. 1913 (*Annandale*); Kasauli, 6,300 ft., 16. v. 1908 (*Annandale*); Dharampore, 17. v. 1913 (*Phaku Ram*); Phagu to Kufri, 8,000–9,000 ft., 21. v. 1916 (*Annandale & Kemp*); Almora Dhaulchina 6,000 ft., 26. vi. 1923, "gnawing *P. longifolia* needles" (*R. N. Parker*); Dwarahat, 5,000 ft., 20. vi. 1923, defoliating *Celtis tetrandra* (*R. N. Parker*); Kumaon, Bhim Tal, 4,450 ft., 2–10. v. 1911 (*Kemp*); Muktesar, 12. v. 1903 (*Sen*, Pusa Coll.); Murree, 7,500 ft., vi. 1918 (*Dutt*, Pusa Coll.); Hazara District, Abbottabad, 21. v. 1915 (*Fletcher*, Pusa Coll.). PUSA, v. 1908 (*C. W. Misra*). NEPAL VALLEY, 4,500–6,500 ft. (*Manners-Smith*, Ind. Mus. Coll.). DARJEELING: Gopaldhara (*H. Stevens*); Mungpu. ASSAM: Manipur (*Doherty*); Shillong, v. 1924 (*Bose*, Pusa Coll.). CHINA: Yunnan (*F. Hauser*, Coll. Erlangen).

Hope described this species from examples from Nepal, and Jacoby from one female example from the Khasi Hills, Assam (Kraatz Coll.). I cannot trace Hope's type, and Jacoby's type is in the British Museum.

Although this species is placed in *Hoplasoma* I am not satisfied with its generic position.

47. **Hoplasoma ceylonensis** Jacoby.

Hoplasoma ceylonensis Jac., Ann. Mus. Civ. Genova, xxiv, 1886, p. 82; l. c., xxvii, 1889, p. 285, pl. iv, f. 11.

Haplosoma ceylonensis Allard, Ann. Soc. Ent. France, (6) viii, 1888 (89), p. 328.

Colour entirely shining yellow-brown except the eyes, which are black; underside slightly darker than upper side.

Head with the vertex smooth and impunctate. Interantennal space slightly elevated. Antenna somewhat shorter than the body, third segment shorter than fourth. *Prothorax*: the median transverse depression shallow and wide; margins all round sharply defined; upper surface impunctate. *Scutellum* triangular, with the apex rounded and the surface smooth and impunctate. *Elytra*: seen from above there appears to be a constriction at about the middle, owing to the presence on each side of a concavity, delimited below by a ridge or costa which extends from the humerus to the point where the elytron bends inwards; between this ridge and the lateral margin the surface is also concave. The upper surface finely and confusedly punctate. *Underside* very sparsely covered with fine hairs. Tibia of the hind legs somewhat bent.

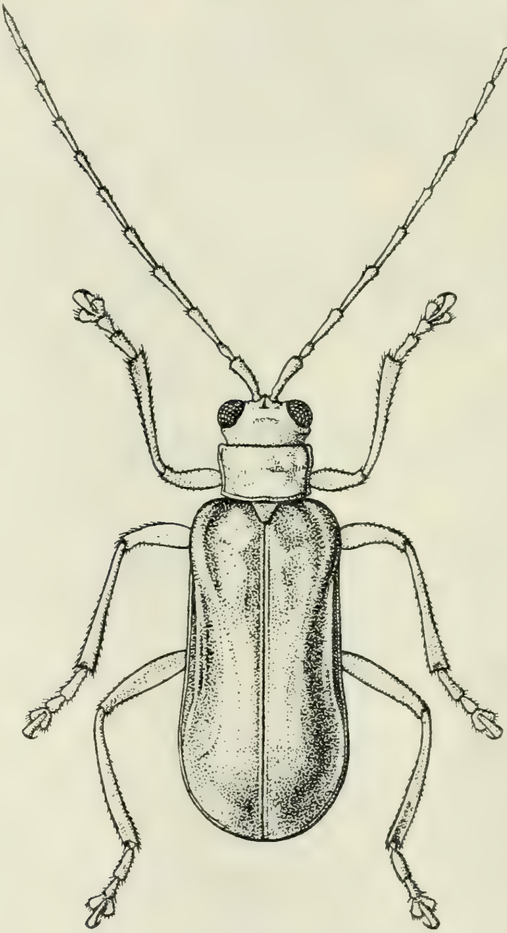

Fig. 45.—*Hoplasoma ceylonensis* Jac.

Secondary sexual characters of ♂. (1) The antennæ are less hairy, and the apex of each segment is very slightly thickened. (2) The first segment of each tarsus is broader than the corresponding segment of the tarsi of the female. (3) The last visible sternite is depressed at the apex, with a median line from the base to the apex. The last visible tergite is deeply divided at the apex and bends over the sternite.

Secondary sexual characters of ♀. (1) The body of the female, seen from above, appears to be slightly broader on the whole than that of the male. (2) The hair-covering of the antennæ is thicker and extends equally to the first segment. (3) The first segment of all tarsi is thinner and longer than in the male.

It may be added that the last visible abdominal segment is not modified as in the male.

Length, 8·75 mm. ; *breadth*, 3·5 mm.

Length of antenna, 7 mm.

Distribution. CEYLON : Kandy, ix. 1907, vi. 1908 (*G. E. Bryant*) ; Galle, sea-level, 27. xi.–4. xii. 1881 (*G. Lewis*).

Type location unknown to me.

There is one example in the collection of the British Museum with the identification label in Jacoby's handwriting.

48. **Hoplasoma costatipennis** Jacoby.

Haplosoma costatipennis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 273.

Colour entirely brown except the abdomen, which is black or piceous ; in some cases the antennæ and legs or parts of them are piceous. Some examples are entirely shining, while some others have the head, prothorax and the scutellum shining and the elytra not shining.

Head with the vertex smooth and impunctate ; inter-antennal space abruptly raised. Antenna slightly shorter than the body ; third segment nearly equal to fourth ; the hair-covering rather profuse, the hairs being long and fine. *Prothorax* : upper surface with the median transverse depression shallow and wide ; smooth and impunctate ; the fine hairs at the corners rather long ; besides these there are some scattered fine hairs along the sharp lateral margins. *Scutellum* triangular, with the apex rounded and the surface smooth and impunctate. *Elytra* : the ridge at each side is sharper than in *ceylonensis* and the body does not seem constricted in the middle ; while the depresssd area above the ridge is not so deep, that below it is much deeper. The surface is confusedly punctate, the punctures not being very close to each other. Viewed sideways very fine erect hairs are seen on the elytra ; in some examples although the discal area does not appear to possess these hairs the apical and lateral areas, including the margins, are full of them. The apical angles of the elytra have a slight emargination ending in sharp points. This character varies, the emargination and the sharpness of the points not being very prominent in some examples. *Underside* : the hair-covering profuse.

Secondary sexual characters of ♂. (1) Although the abdominal processes are not present, two slightly elevated points may be recognized on the second sternite, at least in the shining Ceylonese examples. (2) The last visible sternite is divided into two areas by a median line and is depressed at the apex. The last visible tergite is bent, and exhibits a slight emargination at the apex.

In ♀ there is a depression on the last visible sternite.

Length, 6–8 mm. ; *breadth*, 2·5–3 mm.

Distribution. SYLHET. MADRAS : Madura ; Pondichery. NILGIRI HILLS : Naduvaltam, 7,000 ft., v. 1904 (*W. Rawson*). CEYLON (*E. E. Green*).

Type in the British Museum.

Individual variation. There seems to be a certain amount of variation in this species, but whether this is to be considered individual or specific I am unable to determine in view of the insufficient information available to me. The examples from Ceylon are shining and uniformly coloured, including the abdomen, while one example from Pondichery is somewhat broader, with the upper surface more flat and much lighter in colour. One example from Sylhet and some from the Nilgiri Hills are much smaller in size. Its occurrence in Sylhet, Assam, is interesting, because all other localities are in South India and Ceylon. Attention has already been called to the variation in the hair-covering and in the apical sutural angles of the elytra.

49. **Hoplasoma dilaticornis** Jacoby.

Hoplasoma dilaticornis Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 128.

General colour yellow-brown, with the abdomen and sometimes the antennæ (excepting the three basal segments) blackish or piceous. The head and prothorax are more shining than the elytra.

Head with the vertex smooth and impunctate. The raised interocular area somewhat prominent, and the longitudinal impressed line approaches the vertex to a certain extent in some cases. Antenna extending to a point just beyond the middle of the elytra ; apical four or five segments thicker than the others, and more so in the male ; third and fourth almost equal. *Prothorax* almost quadrate in some examples, a prominent channel along the basal margin, posterior lateral angles obtuse ; upper surface smooth and impunctate, with transverse impressed area very shallow and wide. *Scutellum* triangular, with the apex narrowly rounded and surface smooth, flat and impunctate. *Elytra* confusedly and finely punctate. In certain lights there appear to be indefinite longitudinal lines along the surface. Along the lateral margin the surface is uniformly channelled from base to apex. *Underside*: hair-covering thinner on the last visible abdominal sternite than on the other parts.

Secondary sexual characters of ♂. (1) The eighth, ninth and tenth segments of the antenna are outwardly expanded; eighth and ninth are equal in length, the tenth somewhat shorter; the eleventh segment is rounded, broadened, but not outwardly expanded. (2) The hind femur is much longer and thicker than the femur of the other two legs. (3) The hind tibia is thickened, bent and dorso-ventrally flattened at the apex. (4) The first segment of the front tarsus is thicker than the second, but equal in length. The first two segments of the middle tarsus are equal. The first segment of the hind tarsus is thicker and much shorter than the second, which is extraordinarily long. (5) The last visible abdominal sternite has undergone considerable specialization. It is enlarged, occupying the larger part of the abdominal surface.

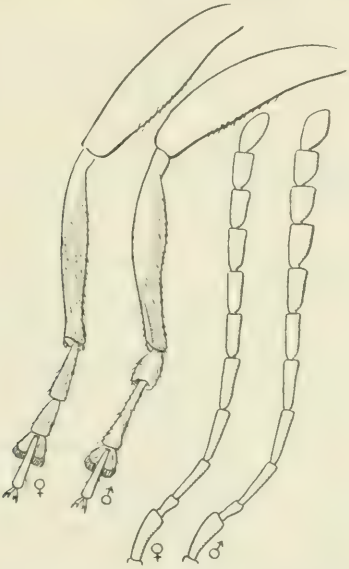

Fig. 46.—Hind legs and antennæ of male and female of *Hoplasoma dilaticornis* Jac.

In consequence the other sternites have become narrowed in the middle. It is longitudinally depressed along the middle, with a line of division, although the surface is not actually split. The last visible tergite is deeply emarginate in the middle, but it does not bend over the last visible sternite.

In ♀, although the hind femur is longer and somewhat thicker than any of the other femora, it is not so strongly modified as in the male. The hind tibia and tarsus show no modification; neither do the last abdominal sternite and tergite, except that the former is divided into two pointed lobes.

Length, 7 mm.; *breadth*, 3 mm.

Distribution. BENGAL: Mandar.

Type and four other examples in the British Museum; of these two are females and three, including the type, are males.

50. **Hoplasoma nilgiriensis** Jacoby.

Haplosoma nilgiriensis Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 396.

Entirely shining yellow-brown, except the abdomen, which is black. Eyes black.

Head with the vertex smooth and impunctate. Interocular and interantennal spaces not very prominently elevated. In one female example the eyes are smaller, not very convex, and not black. Antenna extending to a short distance beyond the middle; third segment distinctly shorter than fourth; all segments thin; the segments from the fourth on become progressively shorter. *Prothorax* with the surface impunctate, and the transverse impression shallow and wide. *Scutellum* triangular, with the apex sharp and the surface smooth and impunctate. *Elytra* confusedly punctate, the punctures fine. There are no other prominent structures, such as longitudinal ribs or channels.

Secondary sexual characters of ♂. (1) Two processes contiguous at their bases, but free in other respects, arise from the middle of the posterior margin of the apparent second abdominal sternite; they share the general colour of the body and not that of the black abdomen; in length they hardly reach the posterior margin of the next segment from the point of their origin; they are flat, broad at the base and narrowing towards the apex, which is rounded. The inner margin of a process (*i. e.*, the margin nearer the median longitudinal line) is sharper than the outer margin, which is more rounded. The upper surface seems to slope from the outer to the inner margin and is covered with fine hairs which are longer along the outer margin. These processes are somewhat different from those of *Hoplasoma unicolor* Illiger, described below. (2) The sloping surface of the last visible sternite with a median elevation, which appears prominent when the insect is viewed from the side. The last visible tergite, with an emargination at the apex, bends over the sternite.

In ♀ the last visible sternite does not possess a cavity in the middle near the apex.

Length, 8·5 mm. ; *breadth*, 3·25 mm. The male is slightly smaller.

Distribution. NILGIRI HILLS : Anamalais, vi.–vii. (Andrewes Coll.).

Type in the British Museum. The type example is a male.

51. **Hoplasoma unicolor** Illiger.

Galleruca unicolor Illgr., in Wiedem., Arch. fuer Zool. u. Zoot. i, 2, 1800, p. 135.
Galeruca unicolor Olivier, Ent. vi, 1808, p. 640, no. 93, pl. 3, f. 46.
Haplosoma unicolor Illgr., Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 327; Jacoby, Ann. Soc. Ent. Belg. xl, 1896, p. 271.
Haplosoma corniculata Allard, l. c., p. 328.
Phyllobrotica unicolor Olivier, Jacoby, Ann. Mus. Genova, xxvii, 1889, p. 230.
Haplosoma abdominalis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 272.
Haplosoma simplicipennis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 272.
Hoplosoma ventralis Baly, Trans. Ent. Soc. Lond. 1886, p. 27.

I arrived at the conclusion that Illiger's *unicolor* is the original species, of which those others mentioned above are synonyms, after I had studied nearly six hundred examples obtained from localities indicated below. Illiger's *unicolor*

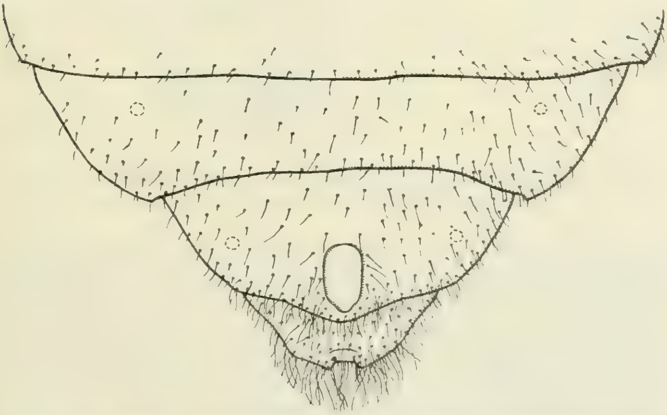

Fig. 47.—Apex of female abdomen of *Hoplasoma unicolor* Illig.

was placed by Jacoby in *Haplosomoides* Duviv. because of the claw-character, Jacoby believing that *unicolor* possessed appendiculate claws. I do not know whether Jacoby examined Illiger's type, which is in the University Museum of Berlin. Professor Dr. H. Kuntzen has been kind enough to supply me with the drawing (here reproduced, fig. 50) which was taken from the type example, and it shows that the claws are bifid and not appendiculate. Therefore, *unicolor* cannot belong to *Haplosomoides*, and must be included in *Hoplasoma*.

General colour shining yellow-brown. The colour of the abdomen and other parts of the underside varies from black to dark brown; some parts may be dark brown, while others are black or piceous; the upper surface is generally lighter than the underside. The processes of the abdominal sternite of the male are always brown or piceous, but never black.

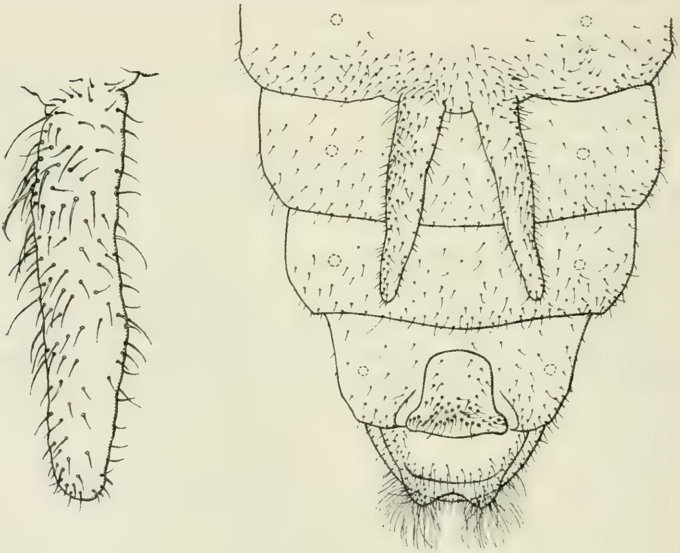

Fig. 48.—Ventral aspect of male abdomen of *Hoplasoma unicolor*; figure on left a process considerably enlarged.

Head with the vertex convex, smooth and impunctate. Interocular and interantennal spaces moderately raised. Antenna extending to about the middle of elytron; third segment very slightly shorter than fourth. In some examples the eyes seem to be somewhat more convex than in others; I believe this to be an individual variation. *Prothorax* somewhat wider in front and wavy or constricted in the middle; upper surface impunctate, and with the transverse impression wide and shallow, sometimes extremely shallow. *Scutellum* triangular, with the apex truncate and surface smooth and impunctate. *Elytra* confusedly punctate, the punctures fine; when the elytral punctation is examined carefully a tendency towards longitudinal arrangement can be observed; no longitudinal ribs or channels along the lateral border. *Underside*: tibiæ more thickly covered with hairs than the other parts.

Secondary sexual characters of ♂. (1) Two processes, similar to those described under *H. nilgiriensis*, are also present in this species. Their point of origin and general structure are also similar, but they differ in being longer and more rounded on the upper surface. In length each process extends almost to the last visible sternite; thus it nearly covers the two sternites immediately following its point of origin. It is completely covered with hair, more so along the outer margin than elsewhere. They are nearer at their bases than at their apices, which are divergent. The outer margin of a process is straighter than the inner, the apex being narrowed, rounded and without any opening. At the base a process is not articulated to the posterior margin of sternite from which it arises, nevertheless it is movable, probably more so in a vertical

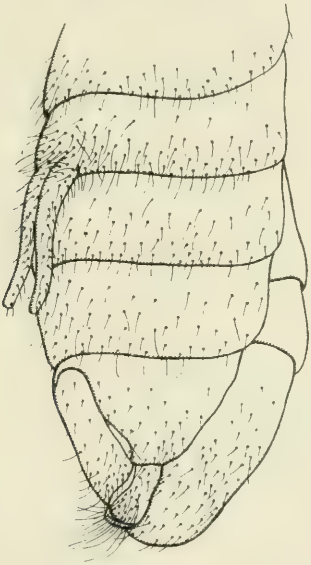

Fig. 49.—Lateral aspect of male abdomen (somewhat extended) of *Hoplasoma unicolor*.

than in a horizontal plane. The interior of a process is continuous with the body-cavity. These latter structural features are present equally in the processes of *H. nilgiriensis.* (2) The sloping surface of the last visible sternite has a well-defined boundary and the surface somewhat rough near the apex, which is straight. The last visible tergite, which bends over the sternite, is deeply and narrowly emarginate at the apex.

In ♀ the last visible sternite has a deep cavity near the apex.

Distribution. BOMBAY: Kanara, Belgaum, 6 ♀♀, 4 ♂♂, (Brit. Mus.). COORG: Sidapur, 17. iii. 1917, 1 ♀ (Pusa Coll.). SOUTH INDIA: Someshwar, 2,000 ft., 24. ix. 1913, 1 ♀ (Pusa Coll.). Taliparamba, 24–30. ix. 1918, 2 ♀♀ (Pusa Coll.). Iyupadi, 9. xii. 1917, 1 ♀ (*Y. R. Rao*, Pusa Coll.). Cannanore, 23. iv. 1915, 1 ♀, 1 ♂ (*G. R. Dutt*, Pusa Coll.). Bangalore, 1 ♂ (*Cameron*, Ind. Mus.). Cochin State, ix. 1914, 1 ♀ (*F. H. Gravely*); Forest Tramway, Parambikulam to Kavali, 1,000–2,000 ft., 24. ix. 1914, 4 ♀♀ (*F. H. Gravely*). Parambikulam, 1,700–3,200 ft., 16–24. ix. 1914, 2 ♀♀ (*F. H. Gravely*); Chalakudi, 14–30. ix. 1914, 14–30. x. 1914, 1 ♀ (*F. H. Gravely*); Kavali, 1,300–3,000 ft., 24–27. ix. 1914, 1 ♀ (*F. H. Gravely*); Trichur, 300 ft., 1–4. x. 1914, 1 ♀ (*F. H. Gravely*). Travancore, Karunagapalli, 4. v. 1915, 1 ♀, 1 ♂ (*G. P. Pillai*). Malabar, 1 ♂ (Brit. Mus.). Nilgiri Hills, 1 ♀, 1 ♂ (*G. F. Hampson*, Brit. Mus.). 2 ♀♀ (Brit. Mus.). Mahé, 1 ♀, 1 ♂, vi. 1901 (*Maindron*, Brit. Mus.). ORISSA: Balasore, Chandipore,

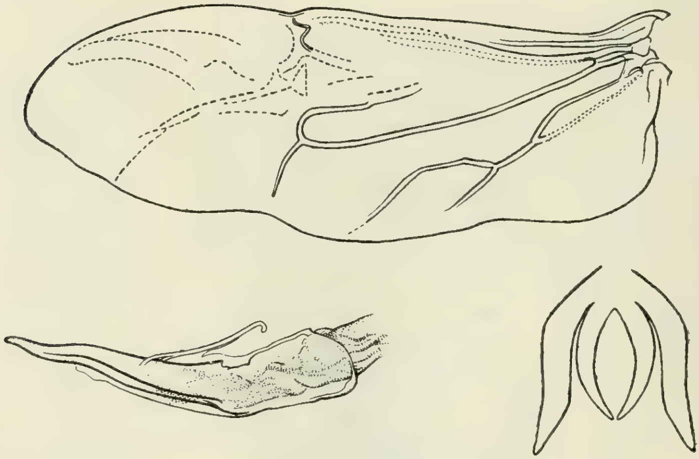

Fig. 50.—Wing, ædeagus and claw of *Hoplasoma unicolor.* The drawing of the claw is from the type example (after a pencil sketch by Dr. Kuntzen).

sea-coast, 17–27. x. 1920, 1 ♀, 1 ♂ (*C. Dover*, Ind. Mus.). Balighai, near Puri, 26. x. 1908, 1 ♀ (*N. Annandale*). Satpara, 17 & 18. x. 1913, 1 ♀, 1 ♂ (*N. Annandale*). Bihar: Pusa, 1. viii. 1915, feeding on leaves of *Clerodendron infortunatum*, 3 ♀♀, 9 ♂♂; 21. vii. 1916, on Jute, 2 ♀♀ (*M. Singh*); 23. vi. 1905, on Rhododendron, 1 ♂ (*C. S. M.*, Pusa Coll.); 14. vii. 1908, 1 ♂ (*D. N.*, Pusa Coll.); 25. ix. 1915, 1 ♀ (Pusa Coll.); 25. viii. 1905, 1 ♀ (Pusa Coll.); 9. v. 1914, 1 ♀ (Pusa Coll.); 26. ix. 1914, eating Kathgular leaves, 1 ♀, 1 ♂ (*C. C. Ghosh*, Pusa Coll.); 30. vi. 1915, sitting on Bhant leaves, 1 ♀ (*A. H.*, Pusa Coll.). Chapra, 2 ♂♂ (*Mackenzie*). Eastern Himalayas: Sikkim, v. 1912, 2 ♂♂ & 1 ♀, 3 ♂♂ (Ind. Mus.). Pashok, 2,500 ft., 26. v.–14. vi. 1916, 1 ♀, 2 ♂♂ (*F. H. Gravely*). Mangpu to Riang, 1,500 to 3,500 ft., 10. v. 1917, 1 ♀ (*Kemp*). Sukna, 500 ft., 1. vii. 1908, 2 ♂♂ (*N. Annandale*). Siliguri, 29–30. vi. 1906, 3 ♀♀, 3 ♂♂ (Ind. Mus.). Nepal Terai: Triveni, 27. xii. 1909, 2 ♀♀ (*B. Warren*). Burdwar, 31. xii. 1909, 1 ♂ (*B. Warren*). Bengal: Calcutta, 115 ♀♀, 97 ♂♂; Tollyganj, 9. iv. 1917, 1 ♀, 2 ♂♂ (*F. H. Gravely*), 10. v. 1922, 1 ♀. Hoogly District, Dhaniakhali, 30. ix. 1914, 1 ♀, 5 ♂♂ (Ind. Mus.); Bandel, 6. ix. 1909, 1 ♂ (Ind. Mus.); on the road from Magra to Tribeni, 31. vii. 1909, 2 ♀♀, 1 ♂ (Ind. Mus.). Kushtia, 7–8. x. 1909, 1 ♀, 1 ♂ (Ind. Mus.). 24-Parganas, Sunderbans, Kankandighee, 15 & 18. xi. 1909, 3 ♀♀, 3 ♂♂ (Ind. Mus.). Khulna, 11. vii. 1907, 2 ♀♀ (Ind. Mus.). Purnea, 5. viii. 1907, 1 ♀, 1 ♂ (*C. Paiva*, Ind. Mus.). Sara, Siripur, 25. ix. 1910, 1 ♀ (Ind. Mus.). Kharagpur, 17–30. vi. 1911, 2 ♀♀ (Ind. Mus.). Buxa Duars, v. 1907, 1 ♀, 3 ♂♂ (*D. Nowrojee*). Berhampur, 3 ♀♀, 3 ♂♂ (Ind. Mus.); 1 ♀, 1 ♂ (Brit. Mus.). Assam: Lushai Hills, 1 ♀ (Ind. Mus.); Mazbat, Mangaldai District, 11–15. x. 1910, 2 ♀♀, 2 ♂♂ (*Kemp*); 16–18. x. 1910, 1 ♀ (*Kemp*, Ind. Mus.). Assam–Bhutan frontier, Mangaldai District, N.E., 26. xii. 1910, 1 ♀ (*Kemp*, Ind. Mus.). Tura, Garo Hills, 1,200–1,500 ft., 15. vi.–15. vii. 1917, 4 ♂♂ (*Kemp*). Tezpur, 8–9. x. 1910, 1 ♀, 1 ♂ (*Kemp*). Jorhat, vii. 1907, 1 ♀. Cherra-Punji, 16. vi. 1918, 1 ♀ (*Y. R. Rao*). Dhamaji, 6. xi. 1908, 1 ♀ (*Fletcher*). Margherita, 14–19. v. 1920, 1 ♀, 2 ♂♂ (*Fletcher*). Gauhati, 21. x. 1920, 4. vi. 1921, 1 ♀, 1 ♂ (*Fletcher*). Sadiya, 21–25. v. 1920, 1 ♀, 1 ♂ (*Fletcher*). Shillong, 3 ♀♀ (Ind. Mus.). Burma: Myitkyina, 30. viii.–1. ix. 1914, 1 ♀, 3 ♂♂ (*Fletcher*); 16. iv. 1918, 4 ♀♀, 4 ♂♂ (Pusa coll.); Wan-hsaung, 600 ft., xi. 1910, 1 ♀ (*C. W. Beebe*, Ind. Mus.). Maymyo, 1,500 ft., 19–21. viii. 1914, 1 ♂. Lashio, 3,000 ft., 23–24. viii. 1914, 1 ♀, 8 ♂♂ (*Fletcher*); 6. iv. 1918, 1 ♀ (Pusa Coll.). Thaton, 1. iii. 1918, 11 ♀♀, 1 ♂. Moulmein, 12–17. ix. 1914, 2 ♀♀ (*Fletcher*); 24. iii. 1918, 3 ♂♂ (Pusa Coll.); 28. ii. 1908, 11 ♀♀, 3 ♂♂ (*N. Annandale*). Pegu, 4. iii. 1918, 1 ♂ (*Y. R. Rao*, Pusa Coll.); 4 ♀♀, 1 ♂ (Ind. Mus.). Pecangai, 200 ft., xii. 1915, 1 ♀, 1 ♂ (*Miss Molesworth*, Ind. Mus.). Rangoon, 2 ♀♀, 1 ♂ (Ind. Mus.). 1 ♀, 1 ♂ (Brit. Mus.). Kawkareik, Amherst District, 19–20. xi. 1911, 1 ♀, 1 ♂ (*F. H. Gravely*). Base of Dawna Hills, 4. iii. 1908, 1 ♂ (*N. Annandale*); Thingannyinaung to Sukli, Dawna Hills, 900–2,100 ft., 23–27. xi. 1911, 1 ♀, 2 ♂♂ (*F. H. Gravely*). Tharrawaddy, 1 ♀, 3 ♂♂ (Brit. Mus.). Paungdé, 1 ♀ (Brit. Mus.); 1 ♀, 2 ♂♂ (Brit. Mus.). Karen Hills, v.–xii. 1888, 1 ♀, 1 ♂ (*L. Fea*, Brit. Mus.). TENASSERIM: 1 ♂ (Brit. Mus.). Mudon, Amherst District, 8. iii. 1908, 1 ♀ (*N. Annandale*). ANDAMAN ISLANDS: 2 ♀♀, 1 ♂ (Ind. Mus.). Port Blair, 15. ii.–15. iii. 1915, 1 ♀ (*Kemp*, Ind. Mus.); 27. iii. 1911, 3 ♀♀ (*C. Paiva*, Ind. Mus.). Guracharama, 1–2. iv. 1911, 1 ♀ (*C. Paiva*); 7. xii. 1928, 2 ♀♀, 2 ♂♂ (*B. A. Bhatia*, Dehra Dun Coll.); 4 ♀♀, 6 ♂♂ (Brit. Mus.); 2 ♀♀, 1 ♂ (*Captain Wimberley*, Brit. Mus.); 2 ♀♀, 4 ♂♂ (*Rœpstorff*, Brit. Mus.); 2 ♀♀, 3 ♂♂ (*G. Rogers*, Brit. Mus.). Middle Andamans, 7. xii. 1928, 2 ♀♀, 2 ♂♂ (*B. L. Bhatia*, Dehra Dun Coll.). SIAM: 2 ♀♀, 4 ♂♂ (Brit. Mus.). MALAY PENINSULA: Trengganu, 4 ♀♀, 4 ♂♂ (Brit. Mus.). Penang, 1 ♀, 3 ♂♂ (Brit. Mus.); 2 ♀♀, 2 ♂♂, 1. xi. 1913 (*G. E. Bryant*, Brit. Mus.). Ding Ding Island, 4 ♀♀ (*N. H. Ridley*, Brit. Mus.). Singapore, 3 ♀♀, 2 ♂♂ (Brit. Mus.); Bukit Timah, 5. v. 1909, 2 ♀♀ (*G. E. Bryant*, Brit. Mus.). SUMATRA: 1 ♀, 1 ♂ (Brit. Mus.). Sockaranda (East Coast), i. 1894, 2 ♂♂ (*Dohrn*, Brit. Mus.). JAVA: Depok, 18. iv. 1909, 1 ♀ (*G. E. Bryant*, Brit. Mus.). BILLITON ISLANDS: 1 ♀, 1 ♂ (Brit. Mus.). BORNEO: S.E. Pengaron, 2 ♂♂ (Brit. Mus). Sar, 2 ♀♀, 2 ♂♂ (Brit. Mus.). Sarawak, Matang Mt., xii. 1913, i. 1914, 2 ♀♀, 1 ♂ (*G. E. Bryant*, Brit. Mus.); 3 ♀♀, 3 ♂♂ (Brit. Mus.). PHILIPPINE ISLANDS: 1 ♂ (Brit. Mus.). CHINA: Hainan Islands (*W. E. Hoffmann*, Lingnan University). KOREA: 1 ♂ (Brit. Mus.).

Type of *G. unicolor* Illiger in the Museum of Zoology, University of Berlin.

Type of *H. abdominalis* Jac. in the British Museum.

Type of *H. simplicipennis* Jac. in the British Museum.

Type of *H. ventralis* Baly in the British Museum.

Note on Sex-ratio.

Having such a large number of examples before me I have taken the opportunity of estimating the ratio between the males and females. As represented in these collections from various localities it works out as 86·73 males to 100 females. The larger the collection the nearer will the figure approach the true ratio. My reason for raising the question of sex-ratio is that it has some bearing on the work of the economic entomologist whose business it is to devise methods of controlling the pests of cultivated plants. The general circumstances under which the males and females of a given species are formed are well established. The problem is how to control these circumstances so that the males and females can be produced at will or their ratio varied to such an extent as to give the economic entomologist an advantage over the species which he considers a pest. The economic entomologist should try to reduce the number of females and increase the number of males. I make this suggestion in order to stimulate research into this problem of sex-ratio.

Genus **AULACOPHORA** Chevrolat.

Aulacophora Chevrolat, in d'Orbigny, Dict. Univ. Hist. Nat. ii, 1842, p. 337; Baly, Trans. Ent. Soc. Lond. 1874, p. 185, and Journ. Linn. Soc. Lond. xx, 1886, p. 1; Chapuis, Gen. Col. xi, 1875, p. 158; Weise, Ins. Deutschl. vi, 4, 1886, p. 574, and Deutsche Ent. Zeitschr. 1892, p. 392; Jacoby, Ann. Mus. Civ. Genova, xxxvi, 1896, p. 458; Maulik, Insects of Samoa, iv, 3, 1929, p. 193.

Rhaphidopalpa Rosenhauer, Thiere Andalusia, 1856, p. 327; Joannis, Abeille, iii, 1866, p. 7; Fairmaire, Gen. Col. d'Eur. iv, 1868, p. 238; Redtenbacher, Fauna Austrica, ed. 3, ii, 1874, p. 489; Chapuis, Gen. Col. xi, 1875, p. 160; Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 305; Weise, Deutsche Ent. Zeitschr. 1892, p. 393, and Ins. Deutschl. vi, 1893, p. 1132; Reitter, Fauna Germanica, iv, 1912, p. 135.

Acutipalpa Rosenhauer, l. c., p. 327.

Ceratia Chapuis, Comptes-Rendus Soc. Ent. Belg. xix, 1876, p. c; Weise, Deutsche Ent. Zeitschr. 1892, p. 396.

Triaplatyps Fairmaire, Journ. Mus. Godeffroy, Band v, Heft 14, 1879, p. 113.

Orthaulaca Weise, Deutsche Ent. Zeitschr. 1892, p. 396, and Tijdschr. Ent. lx, 1917, p. 205.

Cerania Weise, l. c., p. 396.

Sphærarthra Weise, l. c., p. 396.

Pachypalpa Weise, l. c., p. 392.

GENOTYPE, *Galleruca quadraria* Olivier (Java).

In my paper on the CHRYSOMELIDÆ of Samoa (*l. c.*) I have expressed the view that the name *Aulacophora* should not lapse merely because, as was pointed out by Weise, the name is preoccupied by a genus of plants. I have considered very carefully the question whether *Rhaphidopalpa* should remain as a separate genus, but I am unable to find a sufficiently reliable character which would separate it beyond doubt. The depth and curved nature of the transverse impression on the pronotum have been used to differentiate *Rhaphidopalpa*, but it is a secondary male character and very variable. *Galeruca foveicollis* Lucas, which has been selected as the genotype of *Rhaphidopalpa*, has a very wide distribution and shows considerable variation of the individuals, but does not essentially differ from the genotype of *Aulacophora*.

Acutipalpa has never been used as a generic name. Chapuis introduced the name *Ceratia* as a subgenus, and this name was adopted by Weise as a substitute for *Aulacophora*. Fairmaire used *Triaplatyps* in order to separate from the genus a group showing a particular secondary male character. In 1892 Weise (*l. c.*) introduced several names, cited above, as subgenera which may or may not be adopted according to individual views, but I regard the conception of a subgenus in this group as of a fluid nature.

Studying the large number of species of this genus in the collection of the British Museum, which are from all parts of the world, I have formed the view that *Aulacophora* is a natural genus. The general form is fairly constant and is characteristic, and can be recognized at sight.

Body oblong, somewhat broadened posteriorly. In some cases the broadening of the posterior end is more pronounced than in others.

Head exserted, narrower than the prothorax; vertex convex, smooth. Anterior to the convex area, and between the eyes, is a transverse impressed line which is intersected in the middle by a longitudinally impressed line continued between the antennæ as a ridge along the middle of the clypeus, which is triangular. Labrum large, quadrate; labial palpus three-segmented. Maxillary palpus four-segmented, thickened, with the apical segment very small and conical. Antenna long, slender, with the apical four or five segments usually thinner than the basal seven or six; first segment longest; second smallest; next nine segments nearly equal to one another in length; there may be a slight variation in their relative lengths, but it is not very marked; last segment pointed. In the male of some species either the first segment is thickened or the third, fourth and fifth are expanded in various ways. I believe that within the limits of a single species there is considerable variation in the modified segment of the male antenna, so much so that several authors have founded new species on such modifications. Excepting the two basal segments the antennæ are covered with fine hairs. Eyes strongly convex. *Prothorax* quadrate or somewhat broader than long, always narrower than the base of the elytra; a median transversely impressed line, which is generally straight but may be slightly undulating in some species and is of varying depth. In connection with this impressed line there is a deep excavation in the middle area in the males of some species. Area in front of the impression generally convex. Sides obliquely straight, somewhat undulating or rounded. Each of the four angles often with a fine seta. *Scutellum* triangular. *Elytra*: in those species in which the apical broadening is more pronounced the elytral margins are slightly explanate. In the majority of species the surface is smooth and confusedly punctate, but in some species from Java and

Sumatra, in which longitudinal ribs appear, the punctures are stronger and the surface assumes a rough appearance. Humerus prominent, convex. *Underside* thinly covered with fine hairs. Epipleuron abbreviated and not continued beyond the middle. Legs slender; tibia often with a small apical spine; first segment of hind tarsus longer than the corresponding segment of the front or middle tarsus and equal to or somewhat longer than the two following segments together; claw-segment of tarsus long; claws bifid. The last visible abdominal segment in the male is variously modified, as will be explained in the description of species given below.

The following are the secondary male characters found among the species of this genus, and they may occur singly or in any combination in any given species :—

(1) The first segment of antenna may be thickened.

(2) The third, fourth or fifth segments of antenna may be variously modified.

(3) Fine erect hairs may occur on the humeral area.

(4) The frontal area of the head may be deeply impressed.

(5) The last visible abdominal segment may be variously modified.

(6) The front and middle tarsi may be dilated.

Distribution. MEDITERRANEAN COASTS. INDIA. CEYLON. BURMA. MALAY. JAVA. SUMATRA. BORNEO. INDO-CHINA. CHINA. JAPAN. PHILIPPINE ISLANDS. The PACIFIC ISLANDS. AUSTRALIA.

Key to the Species.

Elytra completely yellow or yellow-brown	Section A, p. 169.
Elytra completely black, blue-black, or with a greenish tint	Section B, p. 176.
Elytra with more than one colour, including those in which the yellow-brown elytra have black spots or bands or marginal and sutural stripes	Section C, p. 185.

SECTION A. (Elytra completely yellow-brown.)

1. Scutellum black	*A. almora* sp. n., [p. 170.
Scutellum not black	2.
2. Abdominal sternites not black	3.
Abdominal sternites black (except only the tip in some cases)	5.
3. In the male the first segment of the front tarsus considerably dilated	*A. parambikulamensis* [sp. n., p. 171.
In the male the first segment of the front tarsus not so dilated	4.
4. Lateral margins of elytra somewhat explanate; sides of pronotum also explanate, wider in front than behind	*A. bhamoensis* Jac., [p. 172.
Lateral margins of elytra not explanate, sides of pronotum also not explanate....	*A. nilgiriensis* Jac., [p. 172.

5. Upper surface of elytra generally shining; insect smaller in size: length, 6·75 mm., breadth, 3·5 mm.; in the male humerus covered with erect hairs .... *A. foveicollis* (Luc.), [p. 173.

Insect larger: length, 8 mm., breadth, 4·5 mm.; elytra generally not shining; in the male humerus not covered with erect hairs .... *A. cornuta* (var.), [Baly, p. 192.

52. **Aulacophora almora** sp. nov.

Head, prothorax and elytra shining yellow-brown. Antenna generally brown, but in some cases the seven apical segments may be fuscous. Colour of following parts black:—Labrum, apicies of mandibles, eyes, scutellum, the whole of the underside except prothorax and front legs, middle and hind legs generally. The outer side of front coxa, upper surface of front femur and tibia may be fuscous in some cases. The

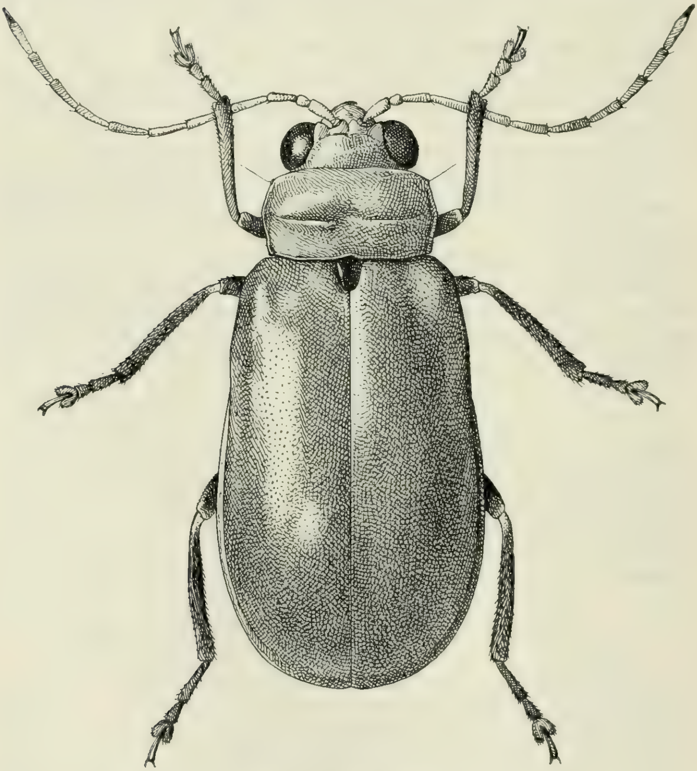

Fig. 51.—*Aulacophora almora* sp. nov.

underside of middle and hind tibiæ may be lighter than the colour of the upper surface in some cases. The middle coxa and trochanter, the trochanter of hind femur and some area round points of articulation between the femora and tibiæ of the middle and hind legs are lighter than the surrounding black. Some parts of middle and hind tarsi and the edges of abdominal sternites are also somewhat lighter than the surrounding black. The intensity of the black colour varies; where it has become somewhat lighter, that is to say, tending towards fuscous, the lighter parts become much more diluted.

Head with the vertex smooth and impunctate. Antenna extending to the middle of elytron, third segment very slightly longer than fourth. *Prothorax* broader than long; median transverse impression straight, fairly deep, extending from side to side; posterior angles almost right angles and anterior ones rounded; surface sparsely punctate, the punctures more crowded on the lateral area than on the middle; sides sinuate. *Scutellum* with the apex rounded and the surface impunctate. *Elytra* smooth, the punctures distinct, fine, not very close to each other, much more crowded on the lateral area than on the apical, each generally having a black centre. *Underside*: each tibia with a spine at the apex.

Length, 7 mm.; *breadth*, 3·5 mm.

Distribution. HIMALAYAS: Kumaon, Almora, Ranikhet, Haldwani District, Sarju Valley, 4,000 ft. (*H. C. Champion*). Siliguri, 18–20. vii. 1907 (Ind. Mus.). ASSAM: Shillong (*F. W. Champion*); Gauhati, 21. x. 1920 (*Fletcher*).

Type in the British Museum.

Described from twelve examples.

53. **Aulacophora parambikulamensis** sp. nov.

Colour entirely yellow-brown except the eyes and the apex of the mandible, which are black.

Head: antenna extending just beyond the middle of elytron, third segment equal to fourth. The first segment of the male is thickened, but not so much as in *A. foveicollis* (Lucas). *Prothorax* slightly broader than long, narrower at base than at apex; side narrowly margined, straight at base and slightly convex towards the apex. Transverse sulcus straight and shallow. Surface covered with a mixture of finer and coarser punctures, more crowded on the lateral area than on the central convex area; background finely shagreened. *Scutellum* impunctate. *Elytra*: surface finely shagreened and uniformly but not very closely covered with fine punctures. Side very narrowly explanate. *Underside*: first segment of the front tarsus expanded, elliptical in form, convex above and concave below; first segment of the middle tarsus also expanded but not much, narrower at base and wider towards the apex, convex above and concave below; first segment of hind tarsus long, somewhat bent, and almost equal to the following segments together.

Other structural characters are as given under the generic description.

Owing to the structure of the tarsi of the male I describe this as a new species. I believe that when more examples of both male and female are collected my diagnosis will be confirmed. The locality seems to lend support to my present view.

Length, 7 mm.; *breadth*, 3·5 mm.

Distribution. SOUTH INDIA: Cochin State, Parambikulam, 1,700–3,200 ft., 16–24. ix. 1914 (*F. H. Gravely*).

Type in the Indian Museum.

Described from one male example.

54. **Aulacophora bhamoensis** Jacoby.

Aulacophora bhamoensis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 944.

Colour entirely yellow-brown, eyes black, apices of mandibles black or fuscous.

Head with the vertex smooth and impunctate. Antenna to some extent extending beyond the middle of the elytron. *Prothorax* broader than long, with the sides explanate and slightly reflexed, somewhat broader in front than behind; posterior angles slightly obtuse and anterior ones rounded; the median transverse impression straight, fairly deep, extending from side to side; surface sparsely covered with fine punctures, which are more crowded at the sides than in the middle. *Scutellum* impunctate. *Elytra* smooth; punctures fine and fairly closely placed; lateral margins slightly explanate and reflexed.

Length, 6·75 mm.; *breadth*, 3·5 mm.

Distribution. BURMA: Bhamo, 1886 (*Fea*); Rangoon.

Type in the Genoa Museum.

Two examples in the British Museum, of which one bears the identification label in Jacoby's handwriting. Jacoby described it from a single male specimen.

55. **Aulacophora nilgiriensis** Jacoby.

Aulacophora (*Orthaulaca*) *nilgiriensis* Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 116.

Colour entirely lemon-yellow, yellow-brown or dark brown; eyes black. The insect is not very shining, generally matt, but shining examples occur.

Head with the vertex smooth and impunctate. Antenna extending a little beyond the middle of the elytron.

Prothorax broader than long, sides almost straight or slightly sinuate; median transverse sulcus straight, not very deep; posterior lateral angles right angles; surface almost impunctate in the middle or at the base, but with a few closely placed punctures on the lateral area. *Scutellum* impunctate. *Elytra* smooth; punctures very fine, fairly closely placed.

Length, 6, 7·5, 8 mm.; *breadth*, 3, 3·75, 4 mm.

Distribution. NILGIRI HILLS (*Andrewes*), February 1920 (*Fletcher*). COORG: Pollibetta, 24. x.–16. xi. 1915 (*Fletcher*); Sidapur, 31. iii. 1917. COCHIN: Kavali, 1,300–3,000 ft., 24–27. ix. 1914 (*F. H. Gravely*): Environs de Mahé, Coté de Malabar, chasseurs indigènes, 2e semestre, 1902. CEYLON: Kandy, vi. 1908 (*G. E. Bryant*); Dikoya, 3,800–4,200 ft., 6. xii. 1881–16. i. 1882; Bogawantalawa, 4,900–5,200 ft., 28. ii.–12. iii. 1882 (*G. Lewis*).

56. **Aulacophora foveicollis** (Lucas).

Galeruca foveicollis Lucas, Explor. Algér. Ent. 1849, p. 542, pl. 44, f. 9, ♂.
Galeruca nigriventris Redtenbacher, Denkschr. Akad. Wiss. Wien, 1, 1850, p. 50; Fauna Austr. ed. 3, ii, 1874, p. 490, footnote.
Rhaphidopalpa foveicollis Küster, Käfer Europa's, xxii, 1851, p. 100.
Galleruca abdominalis Gerstaecker, Peters' Reise nach Mossambique, Zool. 1862, p. 342.
Rhaphidopalpa foveicollis Joannis, Abeille, iii, 1866, p. 100.
Rhaphidopalpa abdominalis Fairmaire, Gen. Col. d'Eur. iv, 1868, p. 239, pl. 69, f. 327.
Rhaphidopalpus foveicollis Redtenbacher, Fauna Austr. ed. 3, ii, 1874, p. 490.
Aulacophora foveicollis Baly, Cist. Ent. ii, 1879, p. 445; Journ. Linn. Soc. Lond. xx, 1886, pp. 3, 5, & 16; Weise, Deutsche Ent. Zeitschr. 1892, p. 394; Ins. Deutschl. vi, 6, 1893, p. 1132.
Life-history notes, Mohammad Afzal Hussain and Syed Abdullah Shah, Mem. Dept. Agric. India, xi, 4, 1926, pp. 31–57.

In dried examples the colour is as follows:—Every part brown except the eyes, metasternum and the first four abdominal sternites, which are black. The last visible abdominal segment, which is modified for copulatory purposes, shares the general colour of the body. The dorsal and ventral aspects are moderately shining. In living examples the colour is generally orange-red; in some examples, even when dried, part of the orange-red colour is still retained.

Head: clypeus and labrum very thinly covered with fine hairs. Antenna extending somewhat beyond the middle of elytron, third segment equal to fourth. *Prothorax* slightly broader than long, sides sinuate, very narrowly margined; transverse sulcus sinuate, varying in depth in both sexes; surface generally very finely punctate, lateral area in front containing a few comparatively coarser punctures. *Scutellum* impunctate. *Elytra* uniformly covered with fine punctures.

Secondary sexual characters of ♂. (1) The first segment of the antenna is thickened ; (2) there are erect hairs on the humeral area ; (3) the transverse channel on the pronotum is much deeper ; (4) the last abdominal segments are modified as described below.

Last visible segment of ♂. Seen ventrally the last visible sternite is divided into three lobes, a middle and two lateral. A lateral lobe is shorter than the middle, gradually narrowed and rounded at the apex, and continuous with the middle by a deep and rounded fold near the base. The middle lobe is oblong in shape, somewhat broader at the base than at the apex, which is slightly emarginate. Its ventral surface is deeply concave, the concavity having the shape shown in the drawing. The sides have sharp edges. In a cleared specimen the following internal structure is seen :—Longitudinally along the middle of the middle lobe, and attached vertically to it, is a chitinized plate extending a little distance beyond the last but one visible sternite and supported by a semicircular sclerite which is attached to the inner surface of the last but one visible sternite. The function of this internal structure appears to be to prevent the trilobed sternite from getting retracted, while the protrusible sclerite, freely resting on the middle lobe and forming a tube with it for the passage of the ædeagus, can have perfect freedom of movement. The last visible dorsal tergite is triangular in form, with the apex rounded. Its ventral surface is concave, and attached to it is the protrusible sclerite mentioned above. The latter is deeply concave ventrally and is very strongly emarginate at the apex, each lobe of the emargination ending in a sharp point. The edge of the lobe is so formed that it is capable of sliding well on the lateral edge of the middle lobe of the ventral sternite. Nearer the base is a small hook-like

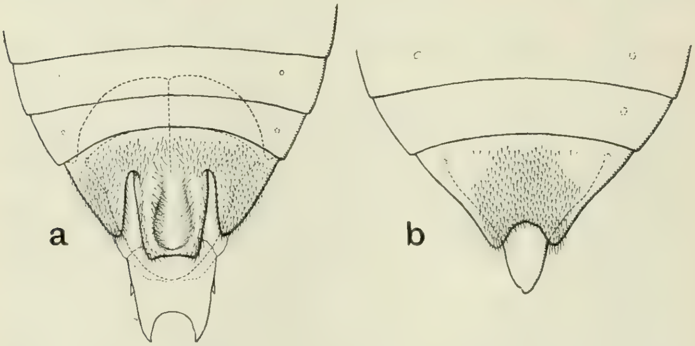

Fig. 52.—*Aulacophora foveicollis* (Lucas). *a*, apex of male abdomen ; *b*, apex of female abdomen.

structure which apparently controls the movement of the dorsal protrusible sclerite so that it cannot move beyond a certain point.

In the female the sternites are simple. The last visible sternite is narrowed and deeply emarginate at the apex and dorsally concave. The last visible tergite is triangular in form, narrower than the last visible sternite, so that the latter encloses the tergite. Its apex is prolonged to some extent beyond the body. The tergite is deeply concave ventrally.

Compare similar structures of the terminal abdominal segments of *A. excavata* Baly.

In India the life-history of this species, under the name *Aulacophora abdominalis* Fab., has been described by Mohammad Afzal Hussain and Syed Abdullah Shah (see p. 28). Why this name should not be used is explained by Baly in a footnote on page 445 of 'Cistula Entomologica,' ii, 1879. Baly writes :—" The name *abdominalis* Fab., as far as relates to our European species, must fall—Fabricius in the Spec. Ins. p. 151, originally described the insect from a specimen in Forster's cabinet brought from one of the islands in the Pacific Ocean : subsequently some individuals from India and the Cape of Good Hope (regarded by him as belonging to the same species) came under his observation, thus in his later works, he gave those localities as Habitats for this species. *A. foveicollis*, Küst, ranges over Southern Europe, the North of Africa, and a considerable extent of Continental Asia ; but in the Malay Archipelago, Australia, and the South Sea Islands it is replaced by closely allied but specifically distinct forms, one or other of which doubtless must be regarded as the true *abdominalis*, which of them unfortunately, from the type being no longer extant, it will be next to impossible to determine."

For references to Fabricius's works see pages 197 & 198.

Küster has been erroneously cited in literature as the author of *foveicollis*.

Length, 6–7 mm. ; *breadth*, 3–3·75 mm.

Distribution. GREECE (Merlin Collection, British Museum). SOUTH EUROPE. ALGERIA. EGYPT. CYPRUS : Ktima, Nicosia, x. 1901 (*B. M. A. Bate*). ADEN. PERSIA : Seistan, Nasratabad, Consulate gardens, xi.–xii. 1918 (*N. Annandale* and *S. W. Kemp*). BOMBAY : Poona, 1–4. iii. 1917 (*G. R. Dutt*) ; 7–9. ix. 1919 (*C. S. Misra* and *G. D. Austin*) ; Surat, 22. v. 1904 ; 11. viii. 1917 (*T. B. Fletcher*). MADRAS : Chikkaballapura (*T. V. Campbell*) ; Samalkot, 12–13. v. 1915 (*G. R. Dutt*) ; Coimbatore, 30. iv. 1913 ; Ganjam, Chilka Lake, Barkuda Island, ix. 1920, on *T. purpurea* (*N. Annandale*). TRAVANCORE : Padwel, Talqi Tedrum, 22. iv. 1913. CEYLON : Dikoya, 3,800–4,200 ft., 6. xii. 1881–16. i. 1882 ; Bogawantalawa, 4,900–5,200 ft., 28. ii.–12. iii. 1882; Colombo, coast-level, 7–27. iv. 1882 (*G. Lewis*). Punjab: Lyalpur, 24. viii. 1917 (*G. R. Dutt*); Abbotabad, vi. 1926 (*T. B. Fletcher*); Kangra Valley, 4,500 ft., vii.–x. 1899 (*Dudgeon*); Salt Range, Sboya Saidan Shah, 12. vii. 1922 (*S. L. Hora*). United Provinces: Kumaon, Bhim-Tal, 4,450 ft., 2–10. v. 1911; Haldwani, Ranikhet (*H. G. Champion*); Fyzabad (*R. W. G. Hingston*); Dehra Dun, 7. ix. 1906; Benares, 17–18. ix. 1919 (*C. S. Misra* and *G. D. Austin*). Nepal: Benikhola, 17. xi. 1908 (Ind. Mus.). Bihar: Pusa, 16. vi. 1916 (*H. Singh*); 1. v. 1914; 31. vii.–2. viii. 1916 (*D. Nandan*); 8. iii. 1920 (*G. D. Austin*); 3. xii. 1915 (*V. Bahadur*). Bengal: Sarda (*F. W. Champion*); Khulna, 11. vii. 1907 (*J. Caunter*); 24 Parganas, Akra, vii. 1909 (*H. M. Lefroy*); Champaran, Bettiah, 4. iii. 1908 (Ind. Mus.); Mourbhanj, Baripada, 10. viii. 1908 (*H. M. Lefroy*). Assam: Shillong, 27. vi. 1919; Sadiya, 12. x. 1920; Khasi Hills, Nongpoh, vii. 1907 (*D. Nowrojee*); Jorhat, v. 1907 (*Deseme*). Burma: Gokteik, 31. iii. 1918; Mandalay, Pyinmana, 18. iii. 1918; Maymyo, 26. iii. 1918. Andaman Islands: Port Blair, 4–13. iii. 1925 (*Shaffi*).

Section B. (Elytra completely black, blue-black, or with a greenish tint.)

1. General colour yellow-brown; head, scutellum, elytra and thoracic sterna black; length 5 mm. .... *A. melanocephala* Jac., [p. 177.
   No such combination of characters ...... 2.
2. Insect large, not less than 7·5 mm. in length, generally 8–10 mm.; broad excavation on the pronotum, deeper in the male; elytra fine steel-blue, not shining........ *A. excavata* Baly, [p. 177.
   Insect always smaller than 7·5 mm.; pronotum with the usual transverse depression; elytra shining and not steel-blue .. 3.
3. Elytra with greenish tint................ *A. viridis* sp. n., [p. 180.
   Elytra without greenish tint .... 4.
4. In the male the vertical area of head with structures.......................... 5.
   In the male the vertical area of head without structures .... *A. intermedia* Jac., [p. 181.
5. In the male the vertical area of head on each side with a strongly thickened transverse ridge; antenna with the first, third, fourth and fifth segments thickened and characteristically modified (see fig. 56).... *A. palliata* (Schall.), [p. 182.
   In the male the vertical area of head without a transverse ridge .... 6.
6. In the male the vertical area of head on each side with a prominence the upper edge of which is compressed and incurved; antenna with the third segment not shorter than the fourth (see fig. 57) ...... *A. frontalis* Baly, [p. 183.
   The vertical area of head on each side with an excavation; antenna with the third segment shorter than the fourth (see fig. 58) .... *A. jacobyi* Ws., [p. 184.

57. **Aulacophora melanocephala** Jacoby.

Aulacophora melanocephala Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 941.

General colour yellow-brown; head, scutellum, elytra and thoracic sterna black.

Head impunctate. Antenna two-thirds the length of the body, third and fourth segments equal. *Prothorax* twice as broad as long; the surface impunctate; the basal sulcus slightly interrupted at the middle. *Elytra* widened behind the middle; a depression behind the base; very minutely and sparingly punctate.

Length, 5 mm.

Distribution. BURMA: Karen Mts. (*L. Fea*).

Type in the Genoa Museum.

I have not seen this species. The above description is taken from Jacoby. I believe this species has a wider distribution, because I have a specimen before me from Lebong, Darjeeling, which answers to the description but has the whole of the underside black and is somewhat larger.

58. **Aulacophora excavata** Baly.

Aulacophora excavata Baly, Journ. Linn. Soc. Lond. xx, 1886, pp. 3, 5, & 18.

Rhaphidopalpa excavata Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 307.

Elytra not shining, steel-blue with an admixture of black; eyes black; the rest of the body, including the scutellum, brown to very dark brown.

Head rather broad; interocular impressed line somewhat deep; clypeus and labrum with a few scattered long hairs. Antenna extending to about the middle of elytron; first segment in male not thicker than the corresponding segment in female; third and fourth segments equal; towards the apex the segments become somewhat thinner. *Prothorax* broader than long, broadening towards the front; anterior lateral angles rounded; sides sinuate; transverse sulcus sinuate; middle area free from punctures, lateral area punctate; more shining than the elytra. *Scutellum* convex, impunctate. *Elytra* very closely, uniformly and completely punctate. *Underside*: in both sexes the terminal segments of the body have undergone extraordinary modifications, as described below.

Secondary sexual characters. (1) In ♂ the transverse sulcus on the pronotum is deeply excavated. (2) In ♂ the last visible sternite divided into three lobes. (3) In ♀ the last visible sternite with a deep emargination.

Structure of the terminal segments of the abdomen. The terminal segment of the abdomen of the male is composed of the last visible tergite (dorsal), the deeply trilobed last visible sternite (ventral), the protrusible sclerite attached to the ventral surface of the last visible tergite, and the internal structure attached to the dorsal surface of the middle of the last visible sternite. The last visible tergite is a large triangular structure gradually narrowing towards the apex, which is slightly emarginate. It is narrower and longer than the trilobed sternite, so that, viewed dorsally, only the lateral lobes of the latter are seen on each side. In the trilobed segment the middle lobe is slightly longer than each of the lateral lobes. It is broader at the base, narrowing slightly towards the apex, which is straight. Its ventral surface is very deeply concave at the basal area. At the base it is continuous with the lateral lobe by a fold. A lateral lobe is triangular in form, narrowing towards the apex, which is rounded. Its surface is slightly recurved dorsally, so that it encloses the dorsal tergite. The protrusible sclerite lies on the dorsal surface of the middle lobe, and is capable of considerable to-and-fro movement. It is composed of two heavily chitinized arms fixed to a transverse chitinized piece of which the middle part is produced into a bluntly conical structure. Each arm is a solid structure, somewhat concave on the inner side and sharply pointed at the apex. In a cleared specimen the colour is dark brown. When in repose—that is, retracted into the body—the sharp apices are visible from the ventral side. It is

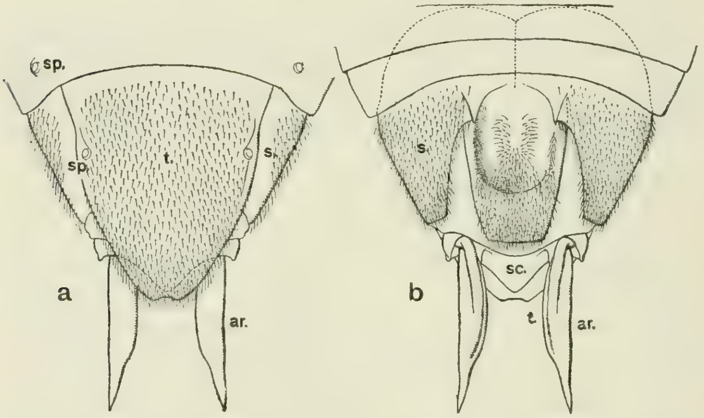

Fig. 53.—*Aulacophora excavata* Baly. Apex of male abdomen: *a*, dorsal aspect; *b*, ventral aspect; *sp.*, spiracle; *sc.*, protrusible sclerite; *t.*, tergite; *s.*, sternite; *ar.*, arm of sclerite.

interesting to compare this retractile structure with that of *A. foveicollis* Lucas described on page 174. In function it is also similar. The internal structure, that is to say, a vertical chitinous wall (shown in dotted line) fixed to the dorsal side of the middle lobe along the middle line, and supported by a large semicircular chitinous structure fixed on each side to the last but one ventral sternite, is present, and, I believe, has a similar function to that indicated under *A. foveicollis*.

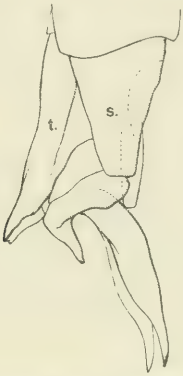

Fig. 54.—*Aulacophora excavata* Baly. Lateral aspect of apex of male abdomen with the arms of protrusible sclerite extended: *t.*, tergite; *s.*, sternite.

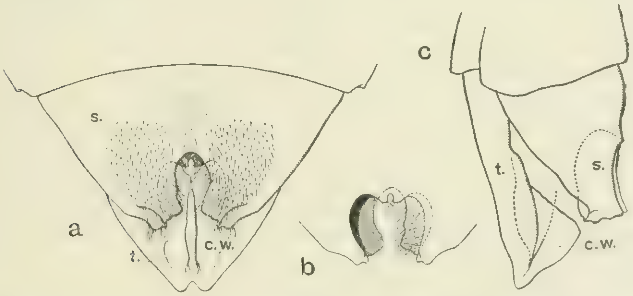

Fig. 55.—*Aulacophora excavata* Baly. Apex of female abdomen: *a*, ventral aspect; *b*, deep median emargination; *c*, lateral aspect; *s.*, sternite; *t.*, tergite; *c.w.*, chitinous wall.

In the female, seen ventrally, the last visible sternite has a deeply looped peculiar emargination. In a cleared specimen this is seen to overhang a deep concavity, so that the deep loop is narrower than the dorsal emargination. The tergite is triangular in form, longer than the sternite, and has a slight emargination at the extreme apex. From the apex rises a strongly chitinized wall that along the middle slopes down in front. Its surface is rough and has transversely directed stiff hairs. This wall does not exist in *A. foveicollis*. All the structures described here are covered with hairs.

All these structures are concerned with the act of copulation of the insect. The function of the wall is to direct the passage of the retractile arms of the male, while the ædeagus, which has a channel along its convex surface, is controlled in its action by the sloping ridge of the wall.

Length, ♀, 8·5 mm.; *breadth*, 5 mm.; ♂, *length*, 7·5 mm.; *breadth*, a little over 4 mm.

Distribution. BIHAR: Pusa, vi. 1909, 10. v. 1914, 12. v. 1915 (*Fletcher*); Chapra (*Mackenzie*); Buxa Duars, 5. i. 1909. Altogether I have seen nine examples from these localities.

When describing the species Baly gave "India" as the locality, but among the species with labels "Baly Coll." in the British Museum one has a label with "Mussooree" on it.

Type and four other examples in the British Museum.

59. **Aulacophora viridis** sp. nov.

Elytra shining blue, with a distinct greenish tint; in some cases the blue colour stronger but not without a trace of green in it. Eyes black. The rest of the body shining yellow-brown.

Head with the vertex smooth, but sometimes with one or two scattered punctures; in some cases the longitudinal middle line continued to the vertex. Surface finely shagreened. Antenna extending to the middle of elytron; third segment equal to fourth. *Prothorax* broader than long, somewhat broadened anteriorly; posterior lateral angles obtuse; transverse sulcus straight, not very deep; surface with a few fine punctures on the middle area and with more numerous and coarser ones on the lateral area in front. *Scutellum* impunctate. *Elytra* fairly closely punctate; background shagreened. *Underside*: the terminal visible segments of the abdomen modified in a similar way to that of *A. foveicollis*.

Length, 5 mm.; *breadth*, 2·5 mm.

Distribution. MADRAS PRESIDENCY: Ganjam district, Chilka Lake, Barkuda Island, 6. ix. 1920.

The following note is in Annandale's handwriting:— "feeding on leaves of *Cayratia carnosa*, a common vine, in considerable numbers." The proper systematic position of the plant is: *Cissus carnosa* Lamarck, section Cayratia, Ampelidaceæ.

The description of this species is based on five examples from Barkuda Island. There are some examples from Pusa which I refer to this species because they show a trace of green in blue elytra. The difference in the elytral colour can be appreciated only when one is accustomed to the quality of the blue colour of the other species.

Type in the Indian Museum; *paratypes* in the British Museum.

60. **Aulacophora intermedia** Jacoby.

Aulacophora intermedia Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 942.

Elytra and eyes black, the rest of the body, including the scutellum, bright yellow-brown or darker brown. Upper surface more shining than the underside.

Head: antenna extending to about two-thirds the length of the elytron: third segment slightly longer than fourth. *Prothorax* broader than long; sides slightly convex in front of the middle; transverse sulcus straight; very scatteredly punctate, a few more punctures on the lateral surface than on the central. *Scutellum* impunctate. *Elytra* uniformly closely and finely punctate.

Secondary sexual characters of ♂. (1) The last visible sternite is trilobed. (2) The third, fourth and fifth segments of the antenna are very slightly thickened, being somewhat thicker than the corresponding segments of the antenna of the female.

Length, 5·5 mm.; *breadth*, about 3 mm.

Distribution. PUNJAB: Lyallpur, 2. iii. 1930. UNITED PROVINCES: Kumaon, Haldwani District (*H. G. Champion*). CENTRAL PROVINCES: Balaghat, iii. 1907 (*H. M. Lefroy*). BOMBAY: Surat, 15. vii. 1904, on Bhindi leaves. SOUTH INDIA: Chikkaballapura (*T. V. Campbell*); Nilgiri Hills; Bangalore; Coorg, Sidapur, 2. v. 1917. BIHAR: Pusa, 31. vii. 1914, 4. iv. 1905. CEYLON: Peradeniya, 14–17. iv. 1914 (*Fletcher*). ASSAM: Garo Hills, above Tura, 3,500–3,900 ft., 15. vii.–30. viii. 1917 (*S. W. Kemp*); Jorhat, Deseme, iv. 1907 (*H. M. Lefroy*). BURMA: Rangoon (*L. Fea*), type-locality; Palon, Pegu, viii.–ix. 1887 (*L. Fea*); Hsipain, 3. iii. 1918 (*Y. R. Rao*); Pyiumana, 8. iii. 1918 (*Y. R. Rao*); Tatkon, 6–7. ix. 1914 (*Fletcher*).

From the above localities it would appear that this species has a very wide distribution in India, Burma and Ceylon. It is possible that its distribution is actually much wider, extending to China and the Malay Archipelago. In that case it would have to be synonymized with *Aulacophora lewisi* Baly. I am aware of the difficulty of settling the relationship of these species, and am of the opinion that it cannot be done by comparison of the individuals. Only data from breeding can decide the question. In the circumstances the arrangement I have proposed here is the best that could be adopted.

Under the name of *Aulacophora atripennis* F. (*excavata* Baly) Messrs. Afzal Husain and Syed Abdullah Shah (Mem. Dept. Agric. India, ix, Feb. 1926, p. 54) have made some notes concerning the present species. I am able to make this statement because Mr. Husain has kindly sent me examples of the species which he called *atripennis.*

Type in the British Museum. The Genoa Museum may also claim to possess the type.

61. **Aulacophora palliata** (Schaller).

Chrysomela palliata Schall., Abhandl. Hall. Ges. i, 1783, p. 279.
Crioceris palliata Fab., Mant. Ins. i, 1787, p. 87.
Cryptocephalus palliatus Gmel., ed. Linn. i, 4, 1790, p. 1718.
Galleruca palliata Fab., Ent. Syst. i, 2, 1792, p. 22; Syst. Eleuth. i, 1801, p. 488.
Galeruca palliata Olivier, Ent. vi, 1808, p. 625, no. 93, pl. 2, f. 25, *a, b.*
Aulacophora palliata Jacoby, Notes Leyd. Mus. vi, 1884, p. 41; Ann. Mus. Civ. Genova, xxvii, 1889, p. 206; Baly, Journ. Linn. Soc. Lond. xx, 1888, pp. 176 & 180; Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 309; Weise, Deutsche Ent. Zeitschr. 1892, p. 398.

Elytra and eyes black, the rest of the body, including the scutellum, bright brown; head and pronotum more shining than the elytra.

Head: hairs on clypeus and labrum rather long; in the male the transverse, impressed line in the interocular space and the median longitudinal one intersecting it deep; on each side of median longitudinal line, seen from the front, the area is raised into a ridge; seen from the top it is well defined and lunate in form. Antenna extending to about the middle of elytron; in the male first segment considerably thickened, somewhat curved and flattened, its inner surface rough; third triangularly expanded; fourth more enlarged than third, having two distinct blunt prominences on the outer side, where there is also a long tuft of hair; fifth smaller than fourth, concave externally, emarginate at the apex, ending in two sharp points. *Prothorax* broader than long, sides almost parallel, somewhat narrowed in front; lateral posterior angles almost right angles; transverse sulcus

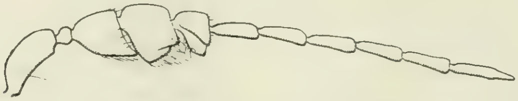

Fig. 56.—*Aulacophora palliata* (Schaller), ♂ antenna.

deep, somewhat oblique on each side ; surface covered with finer and coarser punctures, very sparsely on the central area, which has only a few fine punctures, and more thickly on the lateral areas. *Scutellum* impunctate. *Elytra* uniformly and not very closely covered with fine punctures.

Secondary sexual characters of ♂. (1) Head with a *transverse* ridge on each side of the vertical area. (2) Antenna with the first, third, fourth and fifth segments characteristically modified. (3) Last visible abdominal sternite trilobed.

Length, 6·5 mm. ; *breadth*, 3·75 mm.

Distribution. TRANQUEBAR (this was the locality recorded by Schaller). MALAY ARCHIPELAGO : Sunda Islands.

I have not seen the type ; I have, however, seen three named examples in the collection of the British Museum which are from Baly's Collection. The figures are taken from these examples. In recent collections from India which I have studied this species is not represented.

62. **Aulacophora frontalis** Baly.

Aulacophora frontalis Baly, Journ. Linn. Soc. Lond. xx, 1888, pp. 176 & 181 ; Jacoby, Ann. Mus. Civ. Genova, xxxii, 1892, p. 942 ; Bowditch, Psyche, xxi, 1914, p. 134.

Elytra and eyes black ; the rest of the body, including the scutellum, brown to dark brown.

Head : in thefemale the vertex smooth and impunctate, in the male modified ; placed on each side between the median longitudinal line and the eye is a prominence, the upper edge of which is compressed and incurved. Antenna extending to the middle of elytron ; in the female segments as usual, third longer than fourth ; in the male first segment somewhat thicker than in the female ; third, fourth and fifth thickened and dilated ; length of third about twice its breadth at the apex ; fourth and fifth nearly equal in length, each shorter than third ; fifth somewhat concave on the underside, slightly emarginate at the apex, the angles sharply produced. *Prothorax* broader than long ; posterior lateral angles obtusely rounded ; sides broadened towards the front ; transverse sulcus straight,

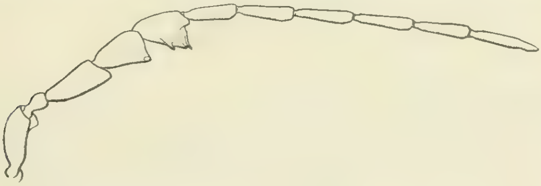

Fig. 57.—*Aulacophora frontalis* Baly, ♂ antenna.

fairly deep; central area with a few minute punctures, the punctures rather closer and stronger on the lateral areas. *Scutellum* impunctate. *Elytra*: the punctures very fine and fairly close together, more so on the basal area than on the apical.

Secondary sexual characters in ♂. (1) Prominences on the vertical area of the head. (2) Third, fourth and fifth segments of antenna modified. (3) Last visible abdominal sternite trilobed.

Length, 5·75 mm.; *breadth*, 3 mm.

Distribution. SOUTH INDIA: South Kanara, Mangalore, 18–22. iv. 1915 (*G. R. Dutt*); Coorg, Pollibetta, 27. v. 1917; Tanjore, 5. v. 1915 (*G. R. Dutt*). CEYLON: Dikoya, 3,800–4,200 ft., 6. xii. 1881–16. i. 1882 (*G. Lewis*). PENANG. SIAM. SUMATRA. JAVA. PHILIPPINE ISLANDS.

It was first described from Sarawak, Borneo.

Type (a male example) in the British Museum.

63. **Aulacophora jacobyi** Weise.

Aulacophora jacobyi Ws., in Junk & Schenkling, Coleopt. Catalogus, pt. 78, Galerucinæ, 1924, p. 10
Aulacophora denticornis Jac., Ann. Mus. Civ. Genova, xxxvii, December 1896, p. 137 (nec Blackb.).

Elytra and eyes black; the rest of the body, including the scutellum, brown; in some cases the legs and the metasternum pitch-brown; in nine examples before me from Tenasserim these parts are completely black.

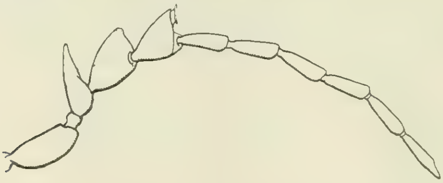

Fig. 58.—*Aulacophora jacobyi* Weise, ♂ antenna.

Head: the transverse impressed line in the interocular space deep; in the male between the longitudinal median line and the eye on the vertical area a deep excavation, the external side of which is raised into an incurved prominence overhanging the excavation. The space between the two excavations bears fine longitudinal striations. In the male third segment of antenna shorter than fourth and considerably prolonged externally in the form of a triangle; fourth much thicker, triangularly expanded externally, but only moderately, with the surface rough; fifth smaller, concave on one side, and emarginate apically, ending in two points. *Prothorax* broader than long ; sides almost parallel, somewhat narrowing towards the apex ; posterior lateral angles slightly greater than right angles ; transverse sulcus deep and straight ; surface covered with fine punctures, more on the lateral areas than on the central. *Scutellum* impunctate. *Elytra* covered with fine punctures.

Secondary sexual characters of ♂. (1) Head with an excavation on each of the lateral areas. (2) Antenna with the third, fourth and fifth segments characteristically modified. (3) Last visible ventral segment of the abdomen trilobed.

Length, 6 mm. ; *breadth,* 3 mm.

Distribution. TENASSERIM (*Doherty*). JAVA. PENANG. MENTAWE ISLANDS : Sipora, v.–vi. 1894 (*Modigliani*).

This example in the collection of the British Museum is from the Genoa Museum, and is marked " Cotype."

Type in the Genoa Museum.

It must be noted that the identification of a species on secondary sexual characters of the male involves the difficulty that, when only a female is captured, it is almost impossible definitely to refer it to any particular species. It seems that the collections before me contain more males than females. It may be suggested here that we are, in these cases, dealing with the phenomenon that a single species may have one kind of female but two or more kinds of males—that is to say, the males are polymorphic within the same species. Whether this be so or not can only be elucidated by experimental breeding, and I commend this proposition to those who have the opportunity.

SECTION C. (Elytra with more than one colour, including those in which the yellow-brown elytra have black spots or bands or marginal and sutural stripes.)

1. Colour of basal half of elytra brown and of apical half black, the basal brown area sometimes containing humeral and sutural black spots	*A. bicolor* (Web.) (var.), [p. 187.
Elytra differently coloured	2.
2. Elytra with the basal area black or almost wholly black ; only a certain area at the apex yellow-brown or red ; the lateral margins and suture not yellow-brown	8.
Elytra differently coloured	3.
3. Elytra yellow-brown or darker brown, with the margins all round, and suture, perfectly or imperfectly, sharply or diffusedly black	4.
Elytra with black spots, patches or bands.	13.
Elytra differently coloured	5.

4. Elytra shining yellow-brown, with the suture and margins (not the extreme lateral edges) all round except the external apical angles, where the elytra bend round inwardly, narrowly and sharply black; length, 6·5–7 mm., breadth, 3·5–4 mm. In the male pronotum without a deep excavation	*A. cincta* (Fab.), p. 189.
Elytra dark brown, diffusedly and rather broadly black all round, including the suture; length, 6·5–7 mm., breadth 3·5–4 mm. In the male pronotum with a deep excavation	*A. impressa* (Fab.) (var.), p. 191.
5. Elytra fuscous except the following parts, which are yellow-brown: margin below humerus, lateral margin from the middle to apex, broadening towards the apical area, and suture from the apex, narrowing to about the middle, so that the fuscous colour on each elytron has narrowed towards the apex; length, 6·5 mm., breadth, 3 mm.	*A. semifusca* Jac., p. 192.
Elytra black, with the lateral margins and suture narrowly yellow-brown	6.
6. Suture, a small area at the apex and lateral margin yellow-brown, this colour along the suture slightly broadening at the middle	*A. bicolor* (Web.) (var.), p. 187.
Suture not so characterized	7.
7. Insect larger, length, 8 mm., breadth, 4·5 mm.; the yellow-brown margins and suture very narrow; male without an excavation on the pronotum	*A. cornuta* Baly (var.), p. 192.
Insect smaller, length, 6·5–7 mm., breadth, 3·5–4 mm.; the yellow-brown margins and suture somewhat broader, at least at the apical area; male with a deep excavation on the pronotum	*A. impressa* (Fab.), p. 191.
8. The apical yellow-brown or red area closed as a circle common to both elytra	*A. cruenta* (Fab.) (var.), p. 194.
The apical area not so closed, but covering the entire apex	9.
9. Insect with the yellow-brown portions much mixed with red or wholly replaced by red	10.
Insect without the red colour	12.
10. Just below the humerus the short epipleuron yellow-brown or red	*A. cruenta* (Fab.) (var.), p. 194.
Short epipleuron black	11.
11. Insect larger, length, 6·75–10·75 mm., breadth, 4 to a little more than 6 mm. (the lowest figure for length is exceptional); lateral margins of pronotum more explanate	*A. rosea* (Fab.), p. 196.
Insect smaller, length, 6·5 mm., breadth, 4 mm.; lateral margins of pronotum less explanate	*A. pulchella* Baly, p. 195.
12. Insect not shining	*A. bicolor* (Web.) (var.), p. 187.
Insect shining	*A. gestroi* Jac., p. 196.

13. Elytral black patches on either the basal or humeral areas obsolescent. (No example has yet been found which does not show a trace of the black patches.).	[(var.), p. 187. *A. bicolor* (Web.)
Elytral black patches distinctly marked . .	14.
14. Elytra shining yellow-brown, with two postbasal irregularly rounded or squarish black patches; length, 7·5–8 mm., breadth, 5·5 mm.	[p. 193. *A. andamanica* Duviv.,
No such combination of characters	15.
15. Insect shining yellow-brown, often mixed with red; each elytron with a basal round black spot nearer scutellum, two round black spots across the middle (which sometimes form a band), and a smaller apical spot (often absent); length, 6–7·5 mm., breadth, 3·5 to a little more than 4 mm.	[p. 194. *A. cruenta* (Fab.) (var.),
Insect not shining; colour yellow to dark brown, underside black; across the basal area of each elytron one black spot near the scutellum and another on the humerus, two similar spots across the postmedian area; these spots may form a band; length, 6–11 mm., breadth, 3–6 mm.	[p. 187. *A. bicolor* (Web.) (var.),

64. **Aulacophora bicolor** (Weber).

Galleruca bicolor Web., Obs. Ent. 1801, p. 56; Fab., Syst. Eleuth. i, 1801, p. 482.

Aulacophora bicolor Baly, Journ. Linn. Soc. Lond. xx, 1886, pp. 3, 4 & 19; Trans. Ent. Soc. Lond. 1889, p. 299; Allard, Ann. Soc. Ent. France, (6) viii, 1888, (1889), p. 308.

Galleruca hæmorrhoa F., in Illig. Mag. Ins. ii, 1803, p. 293.

Aulacophora semiopaca Jac., Ann. Mus. Civ. Genova, xxiv, 1886, p. 51; Baly, Ent. Monthly Mag. xxiii, 1887, p. 268; Trans. Ent. Soc. Lond. 1889, p. 300.

Galeruca sexpunctata Olivier, Ent. vi, 1808, p. 627, no. 93, pl. 2, f. 29.

Aulacophora sexpunctata Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 314; Duvivier, Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. cxlvi.

Aulacophora sexnotata Chapuis, Comptes-Rendus Soc. Ent. Belg. xix, 1876, p. c; Baly, Journ. Linn. Soc. Lond. xx, 1886, p. 19; Trans. Ent. Soc. Lond. 1889, p. 300.

This species presents a great number of colour-varieties. There are only two colours, namely black and brown, which are distributed in different ways on various parts of the body. The insect is never completely brown or black. The head, antennæ, pronotum and scutellum are always brown. The eyes are always black. When the elytra are almost wholly brown they have at least an obsolescent small spot on each elytron, or when almost black the extreme apex is brown. Between these two extremes the elytra have many arrangements of spots and patches, which may be grouped as follows:—First, the basal half is brown, with a small postbasal and a humeral black spot, and the apical half is black. Secondly, most of the elytral surface is black, with at least some area at the apex brown ; this brown area in some cases has extended, covering almost half of the elytral surface ; in some cases the suture is brown, which slightly broadens at about the middle. The next basic type-pattern, from which other numerous varieties may be derived, is a broad band across the basal area of the elytra and a similar median band. In some cases the extreme edge of the base is brown, which encroaches into the black as a small streak in the middle.

The basal band in no case covers the scutellum and varies considerably in its length. In some cases it shows a tendency to elongate, almost meeting the median band ; on the other hand, through a series of examples this band can be traced to become gradually reduced till it breaks up into two spots on each elytron, a scutellar and a humeral. The spots again undergo reduction till they become obsolescent. The fate of the median band can be similarly traced till it disappears. The basal and median bands simultaneously undergo reduction in the same specimen, but the rate of their reduction may not be the same. On the underside all structures may be brown or black ; the front legs and the underside of prothorax have a tendency to be more often brown than not ; the legs also are more often brown, only black in some parts. There is no constant correlation between the coloration of the underside and the pattern of the upper side. The brown colour varies from a lighter shade to pitchy. The black may have a slight tint of blue. The surface is generally matt. Sometimes the head and pronotum appear to be more shining than the elytra. To attempt to give names to the varieties or to mark them in some other way is futile, since they merge into one another and are not fixed. It is not possible to state definitely whether any fixed geographical race exists, although it would be expected seeing that the species has such a wide distribution. Weber described it from examples from Sumatra, ex Daldorf Collection.

Head with the vertex with one or two scattered punctures ; interocular space with deep depression. The length of antenna in relation to that of the body is given below ; basal segment somewhat shining ; third nearly equal to fourth ; each of the four apical segments slightly shorter than each of the immediately preceding segments. *Prothorax* broader than long ; sides parallel but somewhat sinuate in front ; posterior lateral angles right angles ; transverse sulcus slightly oblique, more pronounced on each side than on the middle ; middle area with a few scattered fine punctures, which are stronger and more crowded on the lateral areas. *Scutellum* more shining than the elytra, impunctate. *Elytra* : the punctures fine and not very closely placed. *Underside*: clothing of hairs rather thick and silvery.

There are no structures which can be considered as secondary sexual characters as in some of the other species.

Length, 8 mm.; *breadth*, 4·25 mm.

Length of antenna, 6·25 mm.

These are the measurements of the specimen from Tura, Assam (*S. Kemp*).

The length and breadth of the smallest example are 5 mm. and 3 mm. respectively, and that of the largest example 10 mm. and 5·5 mm.; the former is from Java and the latter from Sumatra.

Distribution. ASSAM: Garo Hills, Tura, 1,200–1,500 ft., 15. vi.–15. vii. 1917 (*S. Kemp*). EASTERN HIMALAYAS: Darjeeling District, Pashok, 2,000 ft. (*L. C. Hartless*). TENASSERIM (*Doherty*). NORTH ANDAMAN ISLAND, 16. xii. 1928 (*B. M. Bhatia*). NICOBARS (*Roepstorff*). SUMATRA. JAVA. FORMOSA (*Hans Sauter*). PHILIPPINE ISLANDS.

The greater number of the specimens in the collection of the British Museum are from various localities in Sumatra.

The Andaman examples have the elytral lateral margins yellow-brown; in the Nicobar examples only a little portion of the margins are so coloured; in the former the apical area of elytra is black, only margins being yellow-brown; in the latter the apical area, including the margins, is yellow-brown.

Type location unknown to me, either in Kiel or Copenhagen.

65. **Aulacophora cincta** (Fabricius).

Crioceris cincta Fab., Syst. Ent. 1775, p. 119; Spec. Ins. i, 1781, p. 150; Mant. Ins. i, 1787, p. 86; Hübner, Naturforscher, xxiv, 1789, p. 42, pl. 2, figs. 6–8.

Crioceris atratus Gmelin, ed. Linn. i, 4, 1790, p. 1718.

Galeruca cincta Fab., Olivier, Encyclopédie Méthodique, vi (Ins.), 1791, p. 592.

Aulacophora stevensi Baly, Journ. Linn. Soc. Lond. xx, 1886, pp. 3, 5 & 22; Trans. Ent. Soc. Lond. 1889, p. 302; Jacoby, Proc. Zool. Soc. Lond. 1887, p. 103, pl. 11, f. 1.

General colour pale yellow-brown; eyes black; extreme basal margin, humerus, a lateral stripe which does not cover the extreme marginal edge, suture, apical margin where the extreme edge is covered, all continuously pitch-black; external apical angles of elytra not stained with pitch-black, so that at these points there is a break in the continuity of the marginal stripes and the apical marginal bands; this is invariable and characteristic. The stripes are well defined and sharp. The sutural stripe is narrower than the marginal. The scutellum shares the colour of the basal margin. Pronotum and scutellum more shining than the elytra.

Head: in the female the vertex smooth; in the male on each side of the vertical area very close to the eye an excavation. Antenna (measurement in relation to the length of the body given below) in the male with the first, third, fourth and fifth segments modified. The first is thicker and concave on the outer side; the other three segments are dilated, the fourth being the largest; third triangularly produced on the outer side; fourth truncated on the outer side and with a thicker covering of hairs; fifth somewhat concave and emarginate at the apex. In the female fourth segment longer than third. *Prothorax* broader than long, somewhat widened anteriorly; transverse sulcus straight, deeper in the male than in the female; central area almost impunctate except for a few fine punctures, lateral areas sparsely covered with a mixture of coarser and finer punctures. *Scutellum* impunctate. *Elytra*: uniformly covered with fine punctures; lateral edges slightly explanate. *Underside*: first segment of the front tarsus shorter than the first segment of the middle tarsus, which is again shorter than that of the hind tarsus.

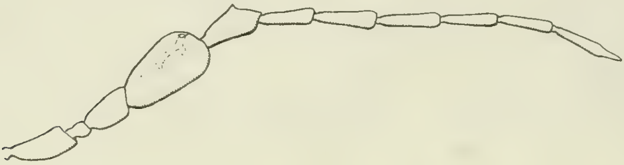

Fig. 59.—*Aulacophora cincta* (Fab)., ♂ antenna.

Secondary sexual characters of ♂. (1) The vertical area of the head with an excavation on each side. (2) The third, fourth and fifth segments of antenna modified. (3) The last visible abdominal sternite trilobed.

Length, ♀, 7 mm., *breadth*, 4 mm.; ♂, 6·5 mm., 3·5 mm.

Length of antenna 5·5 mm. in either sex.

Distribution. South India: Nilgiri Hills (*G. F. Hampson*); Malabar (Fry Coll.). Ceylon (*Nietner*); (*H. P. Green*); Kandy, 1,546–1,727 ft., 6. iv. 1882 (*G. Lewis*), vi. 1908 (*G. E. Bryant*); Bogawantalawa, 4,900–5,200 ft., 21. iii.–4. iv. 1882 (*G. Lewis*); Balangoda, 1,776 ft., 13–16. iii. 1882 (*G. Lewis*); Colombo, coast-level, 7–27. iv. 1882 (*G. Lewis*).

The earlier writers, including Fabricius, mention Tranquebar as the habitat.

The species has characteristic markings which render identification easy.

Type of *Crioceris cincta* Fab. in Dr. König's Collection, Copenhagen Museum.

Type of *Aulacophora stevensi* Baly in the British Museum.

66. **Aulacophora impressa** (Fabricius).

Galleruca impressa Fab., Syst. Eleuth. i, 1801, p. 485.
Galleruca bidentata Fab., in Illig. Mag. Ins. ii, 1803, p. 293.
Orthaulaca limbatipennis Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 117.

General colour brown, sometimes with a tint of red; abdominal sternites and eyes black; elytra black, with the extreme basal margin, the lateral margin, a certain apical area, and the suture narrowly brown; the brown apical area may extend considerably towards the base; the elytral black is never well defined, the boundary being always diffuse. In one male example from Nagpur the elytra are dark brown and all round, including the suture, diffusedly and rather broadly black; in this case the underside is darker than in others. The scutellum is always brown or dark brown according to the general colour of the body.

Head with the vertical area smooth in either sex. Antenna extending beyond the middle of elytron; first segment in the male enlarged, excavated, finely punctate and generally rough on the inner side; third and fourth segments nearly equal. *Prothorax* broader than long, somewhat widened in front. In the male the central area is occupied by a very large and deep excavation; posteriorly it possesses a truncated prominence on each side; in front of each prominence is the depression of the transverse sulcus; right in the middle of the anterior boundary of the excavation is a small depression. In the female the transverse sulcus is more prominent, although the basal area is irregularly and shallowly depressed. In the male the interior of the excavation is not punctate, but the lateral areas are closely punctate. In the female the whole surface is punctate, the lateral areas being more closely so. *Scutellum* impunctate. *Elytra* covered with fine punctures, which are rather sparsely distributed on the apical area.

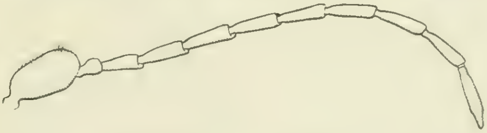

Fig. 60.—*Aulacophora impressa* (Fab.), ♂ antenna.

Secondary sexual characters of ♂. (1) The first segment of antenna greatly enlarged. (2) The pronotum with a deep excavation. (3) The last visible sternite trilobed.

Length, ♂, 6·5 mm.; *breadth*, 3·5 mm.; ♀, 7 mm. and nearly 4 mm.

Out of eleven examples before me eight are males and three females.

Fabricius described the species from examples from Tranquebar in de Seheftedt's Collection.

Jacoby described *limbatipennis* from a single male example which has " Calcutta " on the locality label.

Distribution. Central Provinces : Nagpur, 1. viii. 1907 (*H. M. Lefroy*). Bihar : Chapra (*Mackenzie*). One example in the collection of the British Museum is reported from South India.

Type of *Galleruca impressa* Fab., location unknown to me.

Type of *Orthaulaca limbatipennis* Jac. in the British Museum.

67. **Aulacophora semifusca** Jacoby.

Aulacophora semifusca Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 942.

Head, antennæ, prothorax and legs yellow-brown ; elytra fuscous, with the suture narrowly and the lateral and apical margins more broadly yellow-brown ; scutellum brownish or fuscous ; apical segments of antenna slightly darker ; underside blackish. Upper surface fairly shining.

Head with the vertex smooth and impunctate, in the male without any special structure. *Prothorax* broader than long, with the sides straight at base and very slightly rounded anteriorly ; transverse sulcus straight, rather shallow in the middle ; upper surface with a few minute scattered punctures on the central area and a few more on the lateral areas. *Scutellum* with the upper surface somewhat convex. *Elytra* uniformly covered with minute punctures, which are black on the fuscous area and brown on the yellow-brown parts.

Length, 6·5 mm. ; *breadth*, 3 mm.

Distribution. Burma : Karen Mts. (*L. Fea*).

Type : one example marked type is in the collection of the British Museum, but the Genoa Museum may also claim to possess the type.

68. **Aulacophora cornuta** Baly.

Aulacophora cornuta Baly, Cist. Ent. ii, 1879, p. 445 ; Journ. Linn. Soc. Lond. xx, 1886, pp. 3, 5, & 15 ; Trans. Ent. Soc. Lond. 1889, p. 299 ; Jacoby, Notes Leyd. Mus. vi, 1884, p. 212 ; Ann. Mus. Civ. Genova, xli, 1904, p. 496.

Aulacophora bicornuta Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 309.

Colour of the upper surface either entirely brown or head and pronotum brown and elytra black, with the suture and margins all round narrowly brown ; antennæ always brown, in some cases the apical segments with a fuscous tint ; underside, except that of the prothorax (which is brown), always black ; legs either entirely black or entirely brown, or partly black and partly brown; scutellum always brown; in the examples in which the upper surface is entirely brown some show a difference between the intensity of the colour of the pronotum and that of the elytra. The species is matt or dull, although the pronotum may be somewhat more shining than the elytra. There is no correlation between any particular colour scheme and the sexes.

Head: vertex in both sexes smooth and impunctate. In the male interantennal space widely excavated, the excavation containing very thick tufts of hairs in the central area; some hairs brown and others black; the excavation is bounded anteriorly by prominences or walls, with sharp edges; the thickened first segment of the antenna, when in repose, rests against one of the walls on its outer side; in the female, although the interantennal space does not contain the particular structures mentioned above, it is uneven. Antenna extending beyond the middle of elytron; in the male first segment enlarged, expanded internally, and so modified on the underside as to fit into the corresponding prominence on the interantennal excavation; no other segments modified in any way; in both sexes third segment nearly equal to fourth. *Prothorax* broader than long, somewhat widened anteriorly; lateral margins very slightly explanate; the transverse sulcus varies to a certain extent, in some cases it is interrupted in the middle, being wider and deeper on each side; surface scattered over with fine punctures, which are more crowded on the lateral areas. *Scutellum* impunctate. *Elytra* uniformly and fairly closely punctate.

Secondary sexual characters of ♂. (1) The interantennal space with special structures. (2) The last visible ventral sternite trilobed.

Length, 8 mm.; *breadth*, 4·5 mm.

Distribution. ASSAM (type-locality). MALACCA. CELEBES (*Wallace*). SIAM.

Type in the British Museum. The type-specimen is a male.

69. **Aulacophora andamanica** Duvivier.

Aulacophora andamanica Duviv., Stett. Ent. Zeit. xlvi, 1885, p. 390.

Body somewhat broadened posteriorly, as shown by the measurements given below. General colour shining brown; eyes black; across the postbasal area two large squarish or rounded patches, one occupying the central area and the other the lateral, staining the explanate margin but not the extreme edge; boundaries of the patches irregular; patches showing through on the underside.

Head : clypeus and labrum scattered over with long hairs ; vertical area in both sexes smooth and impunctate. Antenna long, thin, extending beyond the middle of the elytron ; third segment slightly longer than fourth, in some cases they appear to be equal. *Prothorax* much broader than long ; sides almost straight, widely rounded or somewhat widened anteriorly ; lateral margins somewhat explanate and reflexed ; transverse sulcus straight ; surface covered with fine punctures, which are sparse on the central area and more crowded on the lateral areas. *Scutellum* large ; the surface appears somewhat convex ; impunctate. *Elytra* : from below the shoulders the sides widen towards the apex ; lateral margins explanate and slightly reflexed ; surface uniformly covered with fine punctures, which are not very close together.

Secondary sexual character of ♂. The last visible sternite trilobed.

Length, 7–8·5 mm. ; *breadth* across the shoulders, 3·25–4 mm. ; *breadth* across the broadest part of the elytra, 4–5·5 mm.

Distribution. ANDAMAN ISLANDS (*Captain Wimberley*), (*Roepstorff*).

Type location unknown to me, probably in the Brussels or Stettin Museum. In the original description no indication is given as to the location of the type.

70. **Aulacophora cruenta** (Fabricius).

Galleruca cruenta Fab., Ent. Syst. i, 2, 1792, p. 19; Syst. Eleuth. i, 1801, p. 483.
Galeruca cruenta Olivier, Ent. vi, 1808, p. 641.
Aulacophora nigripeta Duviv., Stett. Ent. Zeit. xlvi, 1885, p. 389 ; Jac., Proc. Zool. Soc. Lond. 1887, p. 103, pl. 11, ff. 2 & 3.
Aulacophora quadripunctata Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 314.
Aulacophora biguttata All., l. c., p. 313; Jac., Proc. Zool. Soc. Lond. 1887, pl. 11, f. 2.

There is a considerable variation in colour and size in this species. There are two colours on the body, yellow-brown and black ; the yellow-brown may be paler, much mixed with red, or may be completely replaced by red. The underside, head, antennæ, prothorax, legs and part of the apical area of the elytra are always yellow, yellow-brown, yellow-brown mixed with red, or red. The eyes are always black. The elytra may be black with a certain area at the apex yellow to red, or with a closed circular patch, common to both elytra, of the same range of colour. On each elytron on the basal area near the scutellum is a rounded spot ; across the middle are two rounded spots with irregular outline, which sometimes increase in size and tend to form a band (the lateral one covers the explanate margin of elytron) ; on the apical area is a similar irregular but somewhat smaller patch, which is often absent. In some cases the legs tend to become partly blackish. The admixture of red is not uniform, in the same example some parts may be more red than others. In no case has the red colour invaded the first segment of the antenna, although its apical segments tend to become dark in some examples.

Head with the vertex smooth and impunctate and without any special structures in either sex. Antenna about a millimetre and a half shorter than the length of the insect; third segment equal to fourth. *Prothorax* broader than long, slightly broadening anteriorly; sides almost straight, with the margins somewhat explanate and reflexed; transverse sulcus straight, not very deep; surface hardly punctate on central area except for a few stray punctures, more closely punctate on the lateral areas; posterior lateral angles widely rounded. *Scutellum* fairly large, impunctate. *Elytra*: sides somewhat broadening behind; lateral margins slightly explanate; basal area on either side of the scutellum slightly convex; surface finely and not very closely punctate.

Secondary sexual character of ♂. The last visible sternite of the abdomen is trilobed.

Length, 6–7·5 mm.; *breadth*, 3·5 to a little more than 4 mm.

Distribution. SOUTH INDIA: Malabar. Nilgiri Hills (*G. F. Hampson*). CEYLON: Kandy, vi. 1908 (*G. E. Bryant*); Kitulgalle, 1,700 ft., 17–20. i. 1882 (*G. Lewis*); Bogawantalawa, 4,900–5,200 ft., 21. iii.–4. iv. 1882 (*G. Lewis*); Balangoda, 1,776 ft., 13–16. iii. 1882 (*G. Lewis*).

Type location unknown to me.

71. **Aulacophora pulchella** Baly.

Aulacophora pulchella Baly, Cist. Ent. ii, 1879, p. 446; Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 310.

General colour shining yellow-brown mixed with red; eyes black; basal four-fifths of the elytral surface shining black; the apical one-fifth yellow-brown, the boundary between it and the black area ill defined; the tibiæ are slightly tinged with fuscous at least on the upper side.

Head without any prominent structures in either sex. Antenna extending a little beyond the middle of elytron; the third and fourth segments about equal. *Prothorax* broader than long; transverse sulcus rather deep, straight; lateral margins somewhat explanate and reflexed; very sparsely punctate, the punctures more closely placed on the lateral areas than in front. *Scutellum* impunctate. *Elytra* somewhat broadened posteriorly; lateral margins somewhat explanate; surface closely, uniformly and finely punctate; under a high magnification the background seems finely shagreened.

Secondary sexual character of ♂. The last visible sternite trilobed.

Length, 6·5 mm. ; *breadth*, 4 mm.

Distribution. Assam : The Hills. Baly described this from two examples collected by A. W. Channell. His examples were either marked " The Plains " or " The Hills," according to the locality where the insects were taken. It is possible that this species may have a much wider distribution.

Type in the British Museum.

72. **Aulacophora gestroi** Jacoby.

Aulacophora gestroi Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 943.

General colour shining yellow-brown ; eyes and two-thirds of elytral surface from the base black ; tibiæ fuscous.

Head without any structures in either sex ; eyes in the male appear much more convex. Antenna extending beyond the middle of elytron ; third and fourth segments nearly equal. *Prothorax* broader than long ; sides somewhat explanate and reflexed ; transverse sulcus deep ; finely punctate, more so on the lateral areas than on the central. *Scutellum* impunctate. *Elytra* behind the middle somewhat broadened ; sides slightly explanate ; surface finely punctate.

Secondary sexual character of ♂. The last visible sternite trilobed.

Length, 7·5 mm. ; *breadth*, 4 mm.

Distribution. Burma : Pegu, Palon, viii.–ix. 1887 (*L. Fea*).

Type in the British Museum. The Genoa Museum also may claim to possess the type.

73. **Aulacophora rosea** (Fabricius).

Galleruca rosea Fab., Syst. Eleuth. i, 1801, p. 479 ; Baly, Journ. Linn. Soc. Lond. xx, 1886, pp. 2, 4 & 9 ; Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 310.

Aulacophora albicornis Chapuis, Comptes-Rendus Soc. Ent. Belg. xix, 1876, p. xcix.

Aulacophora variabilis Illiger, Mag. Ins. i, 1802, p. 422 (pars).

Aulacophora lata Baly, Journ. Linn. Soc. Lond. xx, 1886, pp. 2, 4 & 8 ; Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 311 ; Weise, Tijdschr. Ent. lxv, 1922, p. 62.

Aulacophora tibialis Chapuis, Comptes-Rendus Soc. Ent. Belg. xix, 1876, p. xcix ; Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 307.

Aulacophora uniformis Chapuis, Comptes-Rendus Soc. Ent. Belg. xix, 1876, p. xcix ; Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 307 ; Weise, Philipp. Journ. Sc. viii, 3 d, 1913, p. 222.

Aulacophora bipunctata Weise, Philipp. Journ. Sc. viii, 3 d, 1913, p. 222.

General colour shining red ; basal two-thirds or more shining black ; eyes black ; tibiæ and tarsi fuscous to black, in some cases the underside lighter ; antenna brown, with a fuscous tint, the basal and second segments red. The red colour is often diluted with brown and in some cases has been completely replaced by it. The short epipleuron is always black, although sometimes the humerus and the basal margin may be tinged with red.

Head without any special structures in either sex. Antenna very long, only slightly shorter than the body ; third segment very slightly longer than fourth. *Prothorax* broader than long, with the sides gently rounded ; anterior and posterior lateral angles rounded ; lateral margins somewhat reflexed ; transverse sulcus fairly deep, somewhat wavy ; surface sparsely punctate on the central area and more closely so on the lateral areas. *Scutellum* more sharply triangular, smooth, impunctate. *Elytra* somewhat broadened behind the middle ; sides explanate ; basal area slightly convex ; surface finely and uniformly punctate, the punctures not very close together.

Length, 6·75–10·75 mm. ; *breadth*, 4 mm. to a little more than 6 mm.

It must be noted that the smaller extreme is more unusual than the larger. The females are larger than the males. The measurements of the specimens from Assam collected by S. Kemp are as follows :—(1) Length, 7·5 mm. ; breadth, nearly 5 mm. ; length of antenna, 6 mm. (2) Length, 7 mm. ; breadth, 4·5 mm. ; length of antenna, 5·5 mm.

Distribution. ASSAM : Garo Hills, Tura, 1,200–1,500 ft., vii.–viii. 1917 (*S. Kemp*). TENASSERIM (*Doherty*). PENANG. PERAK. SIAM. JAVA. SUMATRA : Merang (*Doherty*) ; Doerian Moelan, Brindjei (*Lt. R. Coughtrie*). PHILIPPINE ISLANDS.

For the sake of completeness the following original records are quoted. These species probably belong to this genus, but it is not possible to synonimize them specifically.

Crioceris indicus Gmelin.

ed. Linné, Syst. Nat. i, 4, 1790, p. 1720.

Cr. niger, capite, thorace, elytris pedibusque testaceis.
Fabr., Mant. ins. i, p. 87, n. 20.
Habitat in India, mediæ magnitudinis.

Crioceris testacea Fab.

Entomologiæ Systematicæ, i, 2, 1792, p. 4.

C. Nigra capite thorace elytris pedibusque testaceis.
Habitat in India orientali Dom. Vahl.
Antennæ testaceæ.

Crioceris abdominalis Fab.

Species Insectorum, i, 1781, p. 151.

C. flava, antennis abdomineque fuscis, ano flavo.

Habitat in Insulis oceani pacifici. *Dr. Forster.*

Antennæ fuscæ basi flavescentes. Caput et thorax glabra, flavescentia maxillis nigris. Elytra lævia, flava, immaculata. Subtus flava abdomine fusco, ano flavo.

Crioceris abdominalis Fab.

Mantissa Insectorum, i, 1787, p. 87.

C. flava antennis abdomineque fuscis, ano flavo.

Habitat in India et capite B. Spei.

Crioceris abdominalis Fab.

Gmelin, ed. Linné, i, 4, 1790, p. 1719.

Cr. flavus, antennis abdomineque fuscis, ano flavo.

Fabr., Sp. Ins. i, p. 151, n. 7. Mant. Ins. i, p. 87, n. 8.

Habitat in India, et ad caput bonæ spei.

Galleruca abdominalis Fab.

Systema Eleutheratorum, i, 1801, p. 483.

G. flava, antennis abdomineque fuscis : ano flavo.

Ent. Syst. 2. 23. 23.

Crioceris testacea Fab.

Ent. Syst. i, 2, p. 4, no. 9.

Hybn. Naturf. 24. 43. 8, tab. 2, fig. 9.

Habitat in India et ad Cap. Bon. Spei.

Genus **PSEUDOCOPHORA** Jacoby.

Pseudocophora Jac., Notes Leyden Museum, vi, 1884, pp. 69, 214 ; Baly, Journ. Linn. Soc. Lond. xx, 1886, p. 26 ; l. c., 1888, p. 168 ; Trans. Ent. Soc. Lond. 1889, p. 308 ; Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 324.

Genotype, *Galleruca buquetii* Guérin (Java).

Jacoby separated *buquetii* Guér. from *Aulacophora* on two characters, viz., the structure of the epipleuron and the nature of the elytral punctuation. The epipleuron is continued almost to the apex in *buquetii*, while in the species of *Aulacophora* it ends before the middle ; the elytral punctures tend to form longitudinal rows in *buquetii*, but they are confused in the species of *Aulacophora*. Jacoby therefore proposed *Pseudocophora* as a new genus, fixing Guerin's species as the genotype. Later Baly found that among the examples which Jacoby called *buquetii* were some which differed somewhat in secondary sexual characters, and accordingly he erected the species *Pseudocophora erichsoni* (Sumatra). Whether Baly is right or not in making a new species cannot be decided by comparison of characters, because it is possible for one species to have more than one kind of secondary sexual characters in the male. It was therefore misleading on the part of Weise to cite *buquetii* Jac. as the genotype of *Pseudocophora* and at the same time make it a synonym of *erichsoni* Baly, for Jacoby did not describe *buquetii*. Even if Baly were right it would not affect the position that *Galleruca buquetii* Guérin should be the genotype.

It should be noted that insects belonging to this genus occurring in widely separated regions strongly resemble one another, so that the identification of an example becomes a matter of great difficulty. In this peculiarity this genus resembles *Aulacophora*.

Body oblong, somewhat broadened posteriorly. General colours brown and black.

Head almost as broad as the front margin of the prothorax; the vertex somewhat convex, generally impunctate; eyes prominent; mouth-parts exserted; in front of the vertex across the interantennal area is an impressed line, between which and the roots of the antennæ are prominences which vary in height in different species; the interantennal area is often raised into a ridge which meets the transverse impressed line in the middle and is continued to the clypeus, which is often raised; labrum about twice as broad as long, with the sides rounded and the front edge very slightly emarginate, sparsely covered with long hairs; maxillary palpus large, three-segmented, second segment much thickened, third conical and pointed at the apex; labial palpus small, two-segmented. Antenna extending to about the middle of the elytron, not very thickly covered with fine hairs; first segment the longest, club-shaped, being thinner at the base, thickening towards the apex; second smallest; there is a little variation in the relative lengths of the third, fourth and fifth segments; from sixth to tenth the segments almost equal to each other, eleventh a little longer and pointed at the end. *Prothorax* somewhat broader than long, narrower at the base, slightly widening towards the apex, the sides sinuate; basal and front margins almost straight; each anterior lateral angle with a small pore bearing a fine hair; each posterior lateral angle a right angle, rounded, or somewhat greater than a right angle, and also bearing a fine hair; upper surface impunctate, or at most with a few scattered punctures, with a transverse sulcus across the middle, in front of which the surface is convex. *Scutellum* triangular, with the apex rounded or acute and the surface impunctate. *Elytra* broader at base than the prothorax, widening posteriorly; humerus convex, impunctate; on the basal portion, more particularly near the suture, the punctures are more prominent, tending to form longitudinal rows; on the apical portion the punctures are finer, sparser and confused; at the apical sutural angle the two elytra do not form one single uniform curve. *Underside* sparsely covered with fine hairs; epipleuron broader at the base, becoming narrower towards the apex, which it almost reaches; legs long, slender, tibia with an apical spine, first segment of hind tarsus longer than the corresponding segment of front or middle tarsus; claw-segment long, claws bifid.

Secondary sexual characters. In ♂ (1) the postscutellar region often contains a depression in which there may be special structures, such as tubercles, prominences &c.; (2) the last visible abdominal sternite is divided into three lobes. In character (1) it does not resemble *Aulacophora*, and in (2) it is similar to *Aulacophora*. In ♀ the last visible abdominal sternite has in some species a deep and narrow emargination.

Distribution. INDIA. CEYLON. BURMA. ANDAMAN ISLANDS. SIAM. JAVA. SUMATRA. MALACCA. BORNEO. PHILIPPINE ISLANDS.

Key to the Species.

1. Elytra with the middle portion black, the basal one-fourth and the apical one-fourth brown	*P. nicobarica* Jac., [p. 200.
Elytra almost entirely black	*P. bicolor* Jac., p. 201.
Elytra entirely brown	2.
2. In the male the postscutellar region not excavated, but with a shallow depression. In the female the last visible abdominal sternite deeply and narrowly emarginate.	*P. pectoralis* Baly, [p. 202.
In the male the postscutellar region deeply excavated. In the female the visible abdominal sternite not emarginate	*P. flaveola* Baly, p. 206.

74. **Pseudocophora nicobarica** Jacoby.

Pseudocophora nicobarica Jac., Ann. Soc. Ent. Belg. xlii, 1898, p. 189.

General colour bright yellow, eyes black, elytra with a black patch covering a large portion in the middle. The front and hind boundaries of the patch are irregular, being more elongate on the sutural margin than on the outer; in the male the front margin of the black patch lies across the middle of the postscutellar excavation; the outer boundary of the patch does not extend to the extreme lateral edges of the elytra; the colour of the edges of the patch on all sides is diluted to dark red-brown; the suture on its inner side is also dark red-brown.

Head: the surface between the roots of antennæ and the transverse impression not prominently raised; vertex smooth, convex and impunctate. Antenna with the third segment very slightly longer than fourth. *Prothorax* broader in front, strongly sinuate on each side; lateral margin very slightly explanate; anterior angle on each side produced; posterior angle obtuse; surface with the transverse sulcus deep and with extremely fine punctures, visible only under high magnification, very sparsely distributed. *Scutellum* somewhat convex, smooth, impunctate, with the apex rounded. *Elytra* with each lateral margin slightly explanate, punctures very fine; under a high magnification a mixture of coarser and finer punctures can be seen at least on the black patch; the tendency to the longitudinal serial arrangement, though recognizable, is not very distinct; the distribution of the punctures on the whole surface is uniform—that is, it is not sparser on the apical portion. *Underside*: epipleuron with one row of fine punctures along the outer margin.

Secondary sexual characters. In ♂ (1) a postscutellar excavation with the front part raised into two rounded prominences; in the middle of the excavation on each side of the suture there are two oval pits, and the surface is without punctures. (2) The last visible abdominal sternite is trilobed. In ♀ the last visible abdominal sternite is without a narrow and deep emargination.

Length, 7–7·25 mm.; *breadth*, about 4 mm. (male). *Length*, 6·5 mm.; *breadth*, 3·75 mm. (female).

Distribution. NICOBAR ISLANDS. Apparently confined to them.

Type in the British Museum. The example that has the type-label is a male.

75. **Pseudocophora bicolor** Jacoby.

Pseudocophora bicolor Jac., Proc. Zool. Soc. Lond. 1887, p. 111.

General colour shining yellow to dark brown, with the elytra shining black; epipleuron lighter at base, darker for the rest of its length; the apical sutural angles sometimes tinged with the yellow or brown; suture very narrowly edged with the same colour; eyes black. I am of the opinion that this species has a very wide distribution. Jacoby described it from examples from Ceylon in which the general colour is bright yellow; one example from the Nilgiri Hills is similarly coloured, but several examples from Buxar Duars which I refer to this species have the general colour very dark brown. These appear to be slightly larger and slightly more strongly punctate, but these differences may be considered as local variations.

Head with the vertex smooth and impunctate. Antenna with the third segment slightly longer than fourth. *Prothorax*: anterior lateral angle somewhat produced; sides strongly sinuate; upper surface with the transverse groove deep, smooth, impunctate on the middle portion, but with a few punctures on the lateral portions. *Scutellum* somewhat convex, smooth, impunctate, the apical angle not rounded. *Elytra* with the lateral margins very slightly explanate. In the Ceylonese species the punctures are generally finer. The punctation generally consists of a mixture of stronger and finer punctures. In the male a certain portion round the postscutellar excavation almost impunctate. In all cases the punctures on the apical portion are finer than on the basal. *Underside*: epipleuron much broader at base than in the rest of its length, surface convex, with one row of punctures, each containing a fine hair, along the outer margin.

Secondary sexual characters. In ♂ there is (1) a postscutellar excavation in front of which are two prominences, the front part of each bearing an oval pit, and in the middle of the depth on each side of the suture is a small oval pit on the margin; all pits and a little area round each bear fine setæ. The surface in the excavation is impunctate. (2) The last visible abdominal segment is trilobed. In ♀ the last visible abdominal segment has no median emargination.

Length, 5 mm.; *breadth*, 3 mm.

Distribution. CEYLON (*G. Lewis*, 1910). SOUTH INDIA: Nilgiri Hills (*G. F. Hampson*). BENGAL: Buxar Duars, v. 1907 (*D. Nowrojee*). ASSAM: Garo Hills, above Tura, 3,500–3,900 ft., 15. vii.–30. viii. 1917 (*S. Kemp*).

Type in the British Museum. The type-example is a male.

76. **Pseudocophora pectoralis** Baly.

Pseudocophora pectoralis Baly, Journ. Linn. Soc. Lond. xx, 1888, pp. 169 & 174; Jacoby, Ann. Mus. Civ. Genova, xxxii, 1892, p. 958.

General colour shining brown, with the eyes black; this brown colour may vary from a very pale to a deeper shade.

Parts of underside are black in some examples; this is probably a local variation. In the type-example, a female, the metasternum, the metasternal episternum and the abdominal sternites except the last visible one black; the apical margins of the abdominal sternites are, however, edged with brown.

Head with the vertex smooth and impunctate. Second segment of antenna somewhat longer than is usual in the genus; third nearly equal to fourth. *Prothorax* almost impunctate in the middle, but with some punctures sparsely distributed on the sides. *Scutellum* smooth and impunctate, with the apex somewhat acute. *Elytra*: on the basal portion, where the punctures tend to arrange themselves in longitudinal rows, there is a mixture of coarser and finer punctures, but on the apical portion there are only finer punctures uniformly distributed.

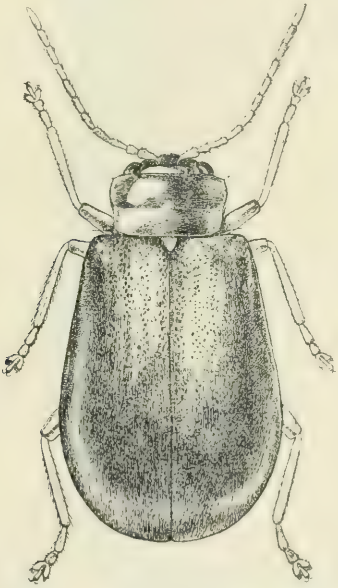

Fig. 61.—*Pseudocophora pectoralis* Baly.

Secondary sexual characters. (1) In ♂ the postscutellar region has an extremely shallow depression, but not an excavation, in the middle of which and also on each elytral edge of the suture lies an ovate rather large puncture. This shallow postscutellar depression is impunctate. (2) The last visible abdominal sternite is trilobed. In ♀ the last visible abdominal sternite has a deep incision or emargination. Baly described this species from one female example ; he did not see a male. I have before me several specimens of both sexes, but from localities other than Assam, which is the type-locality. It seems to me a fairly well-established fact that in this genus a particular secondary male sexual character is correlated to a particular secondary female sexual character, so that when an example with a certain given secondary sexual character is known the opposite sex can be determined by the correlated secondary sexual character. Following this principle I have been able to fix the male of this species, though they are from different localities.

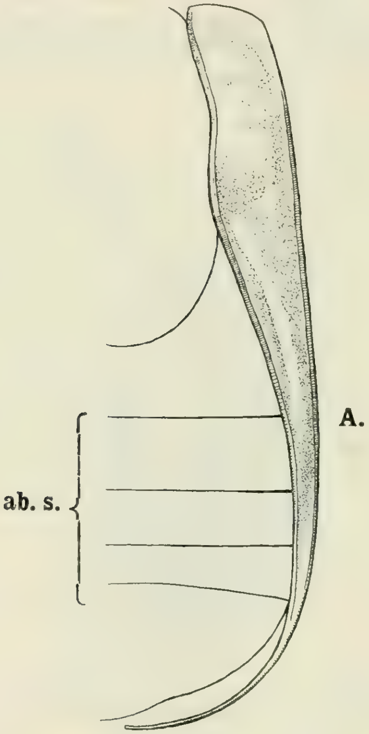

Fig. 62.—Epipleuron of *Pseudocophora pectoralis* Baly.

A., outer margin of elytron ; *ab.s.*, abdominal sternites ; top of figure is the base of elytron, bottom the apex ; the epipleuron is narrowly continued to the apex and not abbreviated in the middle.

The remarks made by Jacoby in the reference given above show that he did not clearly appreciate this principle, and therefore could not reconcile certain characters which puzzled him.

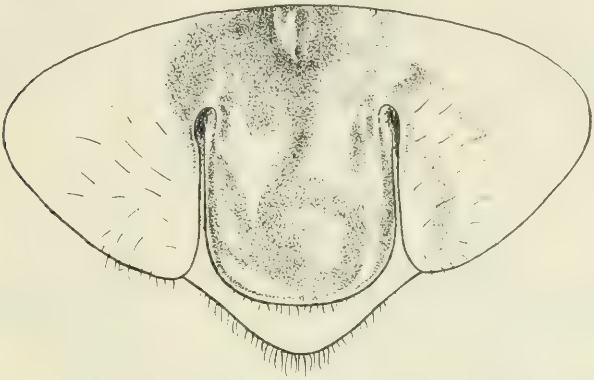

Fig. 63.—Last visible sternite of male *Pseudocophora pectoralis* Baly, showing the trilobed condition.

Length, 6 mm.; *breadth*, about 3 mm. (type-example, female). Examples from other localities may be very slightly larger.

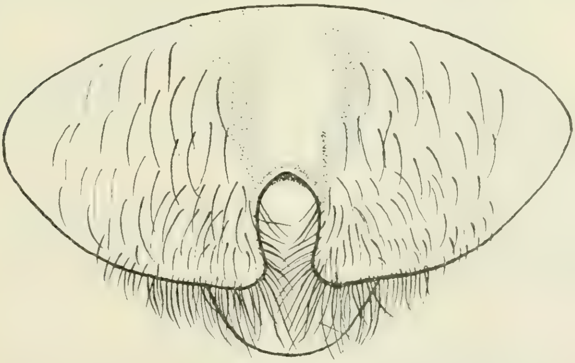

Fig. 64.—Last visible sternite of female *Pseudocophora pectoralis* Baly, showing the deep and narrow emargination in the middle.

Distribution. DARJEELING: Mungpu (*Atkinson*). MANIPUR (*Doherty*). ASSAM (type-locality): Patkai Mts. (*Doherty*): Garo Hills, above Tura, 3,500–3,900 ft., 15. vii.–30. viii. 1917 (*S. Kemp*).

Type in the British Museum.

77. **Pseudocophora flaveola** Baly.

Pseudocophora flaveola Baly, Journ. Linn. Soc. Lond. xx, 1888, pp. 169 & 173.
Pseudocophora flava Allard, Ann. Soc. Ent. France, (6) viii, (1888), 1889, p. 325; Baly, Ent. Monthly Mag. (2) i, 1890, p. 14.

General colour varies from yellow-brown to reddish-brown, with the eyes always black; examples from Buxar Duars, Bengal, have a reddish tint, while those from Assam, Burma and Tenasserim are yellow-brown; but examples from the Andaman Islands, from which locality the species was first described, show both darker and lighter shades. The underside may be brown or some parts only may be black; these latter are the hind coxæ (sometimes partly), the metasternum, the metasternal episternum. The black colour of these parts seems to be constant in the examples from Tenasserim, although in one it is much diluted. In addition to the black

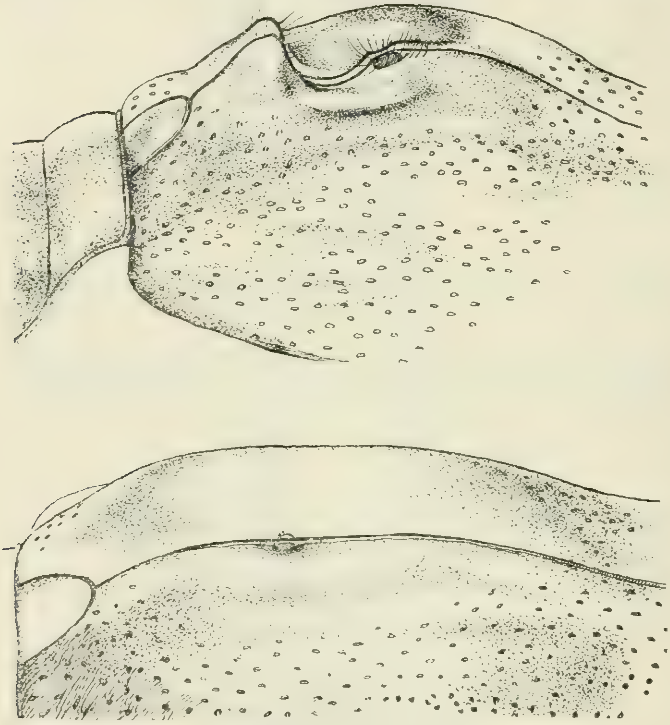

Fig. 65.—Elytra showing postscutellar structure in male: above of *Pseudocophora flaveola,* below of *Pseudocophora pectoralis.*

colour of these parts the abdominal sternites are black in some examples from Buxar Duars; in a few from the same locality the whole of the underside is brown, in others the abdominal sternites only are black, while in a few the metasternum and its neighbouring structures are black, as in the Tenasserim examples. In the examples taken in the Andaman Islands the whole underside is generally brown, although there are cases where a tendency towards black is recognizable. It is after much consideration that I have referred examples from widely separated localities to this species, which was originally described from an island.

Head with the vertex convex, smooth and impunctate; interocular region somewhat depressed. In some cases the third segment of the antenna appears to be distinctly longer, but in others this difference is not so distinct. In species of wide distribution such differences are to be expected. *Prothorax*: the sinuate lateral margins are somewhat reflexed; the anterior lateral angle with the seta-bearing pore rather prominent; upper surface with the transverse sulcus deep; middle portion impunctate, but some scattered punctures on the lateral portions. *Scutellum* somewhat convex, smooth, impunctate, with the apex rounded. *Elytra*: on the basal portion there are both coarser and finer punctures, while on the apical portion they are all fine and more sparsely distributed. In the male the postscutellar excavation and a certain area round it contain no punctures. *Underside*:

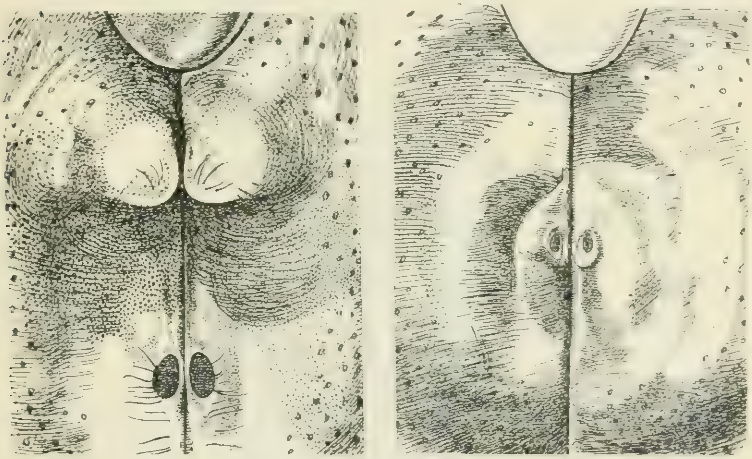

Fig. 66.—Postscutellar depression, greatly enlarged: left *Pseudocophora flaveola*, right *Pseudocophora pectoralis*.

on the epipleuron along the outer margin, but confined to the basal portion only, is a row of punctures.

Secondary sexual characters. In ♂ (1) there is a postscutellar excavation the front part of which is raised into two prominences, the anterior surface of each being obliquely plane but not smooth (this particular character is not distinct in some examples from Buxar Duars); round the apex of each prominence are a few fine setæ. In the middle of the excavation the suture is raised, with the edges sharp; behind the raised portion there is an oval pit on each elytron. (2) The last visible abdominal sternite is trilobed. In ♀ the last visible abdominal sternite is without a narrow incision or emargination.

Length, 5·5 mm.; *breadth*, 3·25 mm. (male). *Length*, 5·75 mm.; *breadth*, 3·75 mm. (female). The type-example is a male.

Distribution. BENGAL: Buxar Duars, v. 1907 (*D. Nowrojee*). BURMA: Momeik (*Doherty*). TENASSERIM: Tavoy (*Doherty*). ANDAMAN ISLANDS (*Roepstorff*).

Type in the British Museum.

Genus **MIMASTRACELLA** Jacoby.

Mimastracella Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 120.
Eriosarda Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 121; Bryant, Ann. Mag. Nat. Hist. (9) xii, 1923, p. 145.

GENOTYPE, *Mimastracella hirsuta* Jacoby.

This is a monotypic genus.

Body oblong, narrow, slightly constricted in the middle, apex rounded; elytra covered with fine pubescence.

Head broad; eyes strongly convex; interocular space roughly sculptured and with a deep impression in the middle; area round the roots of antennæ raised. Antenna long, slender, filiform, with the third segment the longest. *Prothorax* much broader than long, roughly sculptured on the upper surface, and each corner having a fine white seta. *Elytra* much broader at the base than the prothorax, confusedly and very closely punctate; a certain area at the base around the scutellum convex; immediately behind the scutellum a depression on the suture. *Underside*: epipleuron extremely narrowed from behind the base to apex; intercoxal process of the prosternum very thin but not absent; legs slender; tibiæ not channelled, without an apical spine; claws bifid.

Distribution. SOUTH INDIA.

78. **Mimastracella hirsuta** Jacoby.

Mimastracella hirsuta Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 120.
Eriosarda metallica Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 121.

Colour of body metallic green mixed with faint gold and blue; mouth-parts brown; legs deep brown; two basal and part of the third segment of antenna brown, the rest blackish; sometimes four or five basal segments brown and the blackish colour of the rest much diluted by brown.

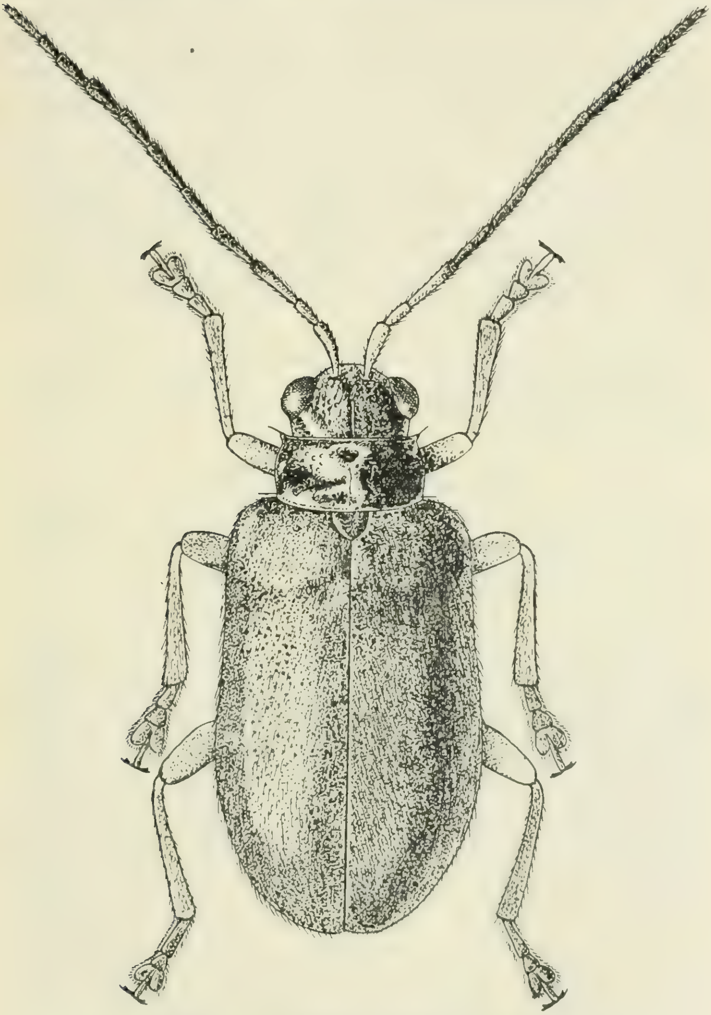

Fig. 67.—*Mimastracella hirsuta* Jac.

Head with the vertex rugose and punctate; a median longitudinal impression; clypeus transversely raised into a ridge. Antenna with the first segment club-shaped, slightly bent and somewhat shorter than third; second about one-third shorter than third; fourth and fifth nearly equal; sixth and seventh nearly equal; eighth somewhat shorter than seventh and nearly equal to each of the following segments; tenth and eleventh appear in some aspects to be somewhat attenuated, the latter pointed. *Prothorax* somewhat narrowed towards the base, so that the sides are widened anteriorly; on each side of the longitudinal middle line the surface slopes down and presents a deep excavation, the area surrounding which is also rugose and punctate; in the middle of the anterior margin a depression: surface not hairy. The rough sculpturing varies in the relative depths and heights of the excavations and elevations. *Scutellum* triangular, with the apex rounded and surface finely shagreened and hairy. *Elytra*: the close punctation of the surface and the hairiness render the appearance of the elytra slightly rugose. *Underside* finely hairy.

Length, 6 mm.; *length* of antenna, 5·5 mm.; *breadth*, 3 mm.

Distribution. NILGIRI HILLS (*H. L. Andrewes*).

Types of *Mimastracella hirsuta* Jac. and *Eriosarda metallica* Jac. in the British Museum.

Genus **PERICLITENA** Weise.

Periclitena Weise, Archiv f. Naturgesch. lxviii, Band 1, 1902, p. 157.
Clitena Clark, Ann. Mag. Nat. Hist. xvi, 1865, pp. 257, 259; Baly, Ent. Month. Mag. ii, 1865, p. 99; Chapuis, Gen. Col. xi, 1875, pp. 198 & 203 (nec Baly, 1864).

GENOTYPE, *Galleruca vigorsi* Hope. Fixed by Weise.

Body oblong, somewhat constricted before the middle, slightly broadened and rounded at the apex. General colour bright metallic blue-green, mixed in some varieties with bright golden-yellow, making a pattern. *Head* together with the convex eyes narrower than the front of the prothorax; inter-ocular space uneven, somewhat rugose, depressed; inter-antennal space with a deep channel meeting the median longitudinal ridge of the clypeus. Antenna extending to a little distance beyond the constriction of elytra; first segment long and club-shaped; third and fourth also long; sixth, seventh and eighth thick; last three very short. *Prothorax* much broader than long, front margin very widely emarginate; somewhat drawn forwards at the anterior lateral angles; sides scalloped; lateral margins slightly reflexed; each of the four corners bearing a fine seta; posterior lateral angles obtusely rounded; upper surface uneven and closely punctate. *Scutellum* triangular, with the apex rounded. *Elytra* much broader at the base than the prothorax. A fairly large area on the base convex; upper surface confusedly punctate, the punctures being very close together; covered with very fine hairs, visible in properly adjusted light ; lateral margins slightly explanate and reflexed. *Underside* : epipleuron broad at the base, narrowed towards and terminated at the elytral constriction ; legs fairly strong, tibiæ narrow at the base and broadened towards the apex, bearing on the upper side a median longitudinal ridge and fairly closely covered with bristly hairs, their apices without spine ; hind femur with a deep channel on the underside ; claws large, strong and bifid.

Distribution. Nepal. Assam. Burma. Indo-China.

79. **Periclitena vigorsi** (Hope).

Galleruca vigorsi Hope, in Gray, Zool. Miscell. 1831, p. 29.
Var. *viridissima* Weise, Tijdschr. Ent. lxv, 1922, p. 66.
Var. *fulgida* Laboissière, Ann. Soc. Ent. France, xcvi, 1927, p. 53.
Galleruca cærulans Hope, in Gray, Zool. Miscell. 1831, p. 29 ; Baly, Cist. Ent. ii, 1879, p. 450.
Clitena igneipennis Baly, Ent. Monthly Mag. ii, 1865, p. 99 ; Cist. Ent. ii, 1879, p. 450.

Coloration : underside entirely deep blue-violet without the admixture of any other colour. On the upper side the blue is mixed with green and gold ; where the green and gold predominate the blue is only seen at the extremities of structures, and where the blue predominates the green and gold are perceptible when the surface is examined by holding the insect at various angles. In the type-specimen of *P. vigorsi* the elytral colouring is as follows :—There is a general background of deep blue which is overlaid with green ; the large basal convex area is covered with bright golden-yellow with deeper reddish shades ; and again, on a large apical area similar colour mixture occurs so that only the constricted part of the elytra is without the golden tint. This produces a pattern on the elytra which is fairly constant. The overlaid colours of golden-yellow and deeper shades have no strictly defined boundaries, so that various shades, namely, blue, green, yellow, gold, orange, form in succession the transitional colours from the constricted area to either the basal or the apical areas. These brilliant colours assume different shades when the insect is examined from various angles.

There are many colour-varieties, which may be described as follows :—

1. Pure blue-violet without any admixture of any other colour.
2. Blue, with distinct admixture of green or greenish-yellow .... *cærulans* Hope, p. 211.
3. Upperside, including the head and pronotum, with the greenish-yellow predominating. . *viridissima* Weise, [p. 211.
4. Head and pronotum blue or bluish-green or with golden suffusion ; on the blue-violet black ground one large bright golden patch at the middle, and another large similar patch on the apical area .... *vigorsi* (Hope), p. 211.

5. Head and pronotum blue or bluish-green ; the whole of elytral surface completely suffused with a bright golden colour .... *igneipennis* Baly, [p. 211.
6. Head and pronotum bright bluish-green ; only basal area with a golden suffusion, the apical area without it.............. *fulgida* Laboiss., p. 211.

Between 1 and 3, *i. e.*, the pure blue and the predominating green mixture, there are various transitional states. The blue-violet may be so deep that it may appear almost black. Again, there may be many permutations and combinations of different colours on the head, pronotum and elytra. As indicated above, names have been given to some of the varieties ; I do not propose to add more names of varieties, because in the long run it becomes impossible to name all shades and it serves no useful purpose.

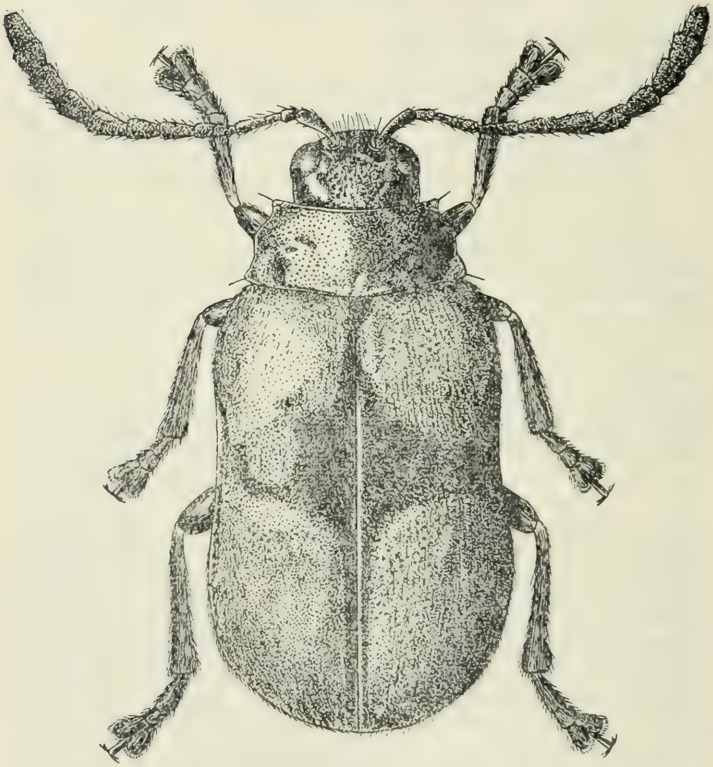

Fig. 68.—*Periclitena vigorsi* (Hope).

Head with the rugose surface punctate. First segment of antenna long and club-shaped ; second very short ; third very long; fourth nearly equal to third; from the apical half of the fourth the segments become progressively thicker to the eighth; the last four segments smaller and thinner; sixth shorter than fifth; seventh shorter than sixth, and so on to the last, which is bluntly pointed; whole antenna covered with pubescence. *Prothorax*: not covered with fine hairs; a depression on the middle line in front of the base. The disc on each side of the longitudinal middle line contains three depressions which vary to a certain extent. *Scutellum* punctate and covered with fine hairs. *Elytra* as under the generic diagnosis. *Underside*: more thickly covered with stouter hairs than the upperside.

Length, 8–13 mm.; *breadth*, 5–7 mm.

Distribution. PUNJAB. SOUTH INDIA: environs de Mahé, côte de Malabar, Chasseurs indigènes, 2e semestre, 1903, two examples in the British Museum. BENGAL: Pusa, 23. vii. 1920, "eating *Cordia myxa* leaf"; 5. iii. 1909, "on lasoda"; 27. viii. 1907, Chapra (*Mackenzie*); Upper Tista Valley, Saran, Siripur, 27. ix. 1910; Darjeeling, Singla, vi. 1912. NEPAL: Katmandu, 9. viii. 1909 (*Col. Manners Smith*). SIKKIM. ASSAM: Khasi Hills; Patkai Mts. (*Doherty*). MANIPUR (*Doherty*). SYLHET. BURMA: North Chin Hills, Tharrawaddy. PENANG. ANNAM. TONKING.

From the above list of localities it can be seen that this species has a very wide distribution along the Himalayan ranges, through Burma right to Tonking. It also occurs as far south as the Malabar coast in India and Penang in the Malay Peninsula. It is only to be expected that a number of varieties would occur within the species.

Type of *vigorsi* Hope in the British Museum: *length*, a little over 11 mm.; *type-locality*, Nepal.

Type of *cœrulans* Hope in the British Museum: *length*, 9½ mm.; *type-locality*, Nepal.

Type of *igncipennis* Baly in the British Museum: *length*, 11½ mm.; *type-locality*, India.

Type of *fulgida* Laboiss. in Duport collection.

Type of *viridissima* Weise unknown to me; *type-locality*, Bengal.

Clitena cyanea Clark, from Java, has a superficial resemblance to the blue and blue-green varieties of this species, and hence has been regarded as a synonym of *vigorsi* Hope; but there are structural differences to separate the two species, as follows:—

♂ eighth segment of antenna angularly dilated at the apex and excavated on the underside, ninth to eleventh segments much shortened; ♀ fourth segment as long as the second and third together .... *cyanea* Clark.

♂ eighth segment of antenna not angularly dilated at the apex and not excavated on the underside, the following segments not so shortened; ♀ fourth segment about as long as the third .... *vigorsi* Hope.

In Weise's 'Catalogue of Galerucinæ' (Berlin, 1924), p. 65, *ignitincta* Fairmaire is given as a variety of *vigorsi* Hope, but it is not so.

Genus **GALERUCELLA** Crotch.

Galerucella Crotch, Proc. Ac. Philad. 1873, p. 55; Weise, Ins. Deutschl. vi, 4, 1886, pp. 575 & 616; Weise, Deutsche Ent. Zeitschr. 1896, p. 296; Jacoby, Biol. Centr.-Amer. vi, 1, 1886, p. 488; Fowler, Col. Brit. Isl. iv, 1890, p. 326; Horn, Trans. Amer. Ent. Soc. xx, 1893, p. 73; Reitter, Fauna Germ. iv, 1912, pp. 135 & 138.

Hydrogaleruca Laboissière, Revue Zool. Afric., Bruxelles, x, 1922, p. 33.

GENOTYPE: in proposing this genus Crotch separated it from *Galeruca*, and named two species, one of which, *Chrysomela nymphææ* Linn. (a common and widely distributed species, Europe, Siberia, N. America), is hereby designated as the genotype. Although I do not use the character on which Crotch separated this genus yet I consider it a good one.

In 1922 Laboissière made *nymphææ* the genotype of a new genus which he called *Hydrogaleruca*. It seems that Laboissière's conception of his genus is the same as that of Crotch with regard to *Galerucella*. By founding a new genus Laboissière perpetuates the confusion in which *Galerucella* is at present. *Hydrogaleruca* should therefore be regarded as a synonym of *Galerucella*. The proposal made here is to restrict the meaning of the genus *Galerucella*, and to fix any other species but *nymphææ* as the genotype would not be in accordance with Crotch's original intention. Although he did not actually fix the genotype his meaning was clear. All those species that conform to the general structure and build of *nymphææ* should be included in *Galerucella*, while others that do not should be placed in various other genera to which they more appropriately belong.

Body generally small, parallel-sided. Seen from above the apical sutural angles seem to be acute and the lateral margins are slightly explanate. Head, pronotum and elytron covered with short silvery hairs.

Head exserted; seen from above the vertex is flattened, with the surface closely punctate; interocular space shallowly depressed and with a fine median line; interantennal space narrow, raised, and with a deep longitudinal channel. Seen from the front the clypeus rises abruptly in front, but not so abruptly on each side, and the upper surface is convex; anterior edge of the raised portion straight and not triangular. Between the posterior visible margin of the labrum and the anterior edge of the raised portion is a flat part of the clypeus, which is almost level with the labrum. Labrum broader than long, with the upper side somewhat convex and shining, and not large enough to cover the mandibles completely. Maxillary palpus four-segmented, penultimate segment as long and as thick as the segment previous to it, ultimate segment conical. Labial palpus three-segmented, third or apical segment conical but blunt at the apex, and about as long as the segment previous to it. Eyes convex but not very strongly. Antenna slender, not long as a general rule, extending to a little distance beyond the basal area of elytron, but in some species it reaches the apical area; first segment long, club-shaped; second much shorter than either first or third; fourth shorter than third; fifth shorter than fourth; sixth shorter than fifth; seventh equal to sixth; eighth slightly shorter than seventh; eighth, ninth and tenth equal to each other; eleventh somewhat longer than tenth and bluntly pointed. The whole antenna is covered with hairs, which appear to be thicker on the shorter apical segments. *Prothorax* broader than long, with a slight concavity in the middle of both front and hind margins. The lateral margin from the end-point of the basal line runs obliquely to a raised seta-bearing pore; in front of this it is

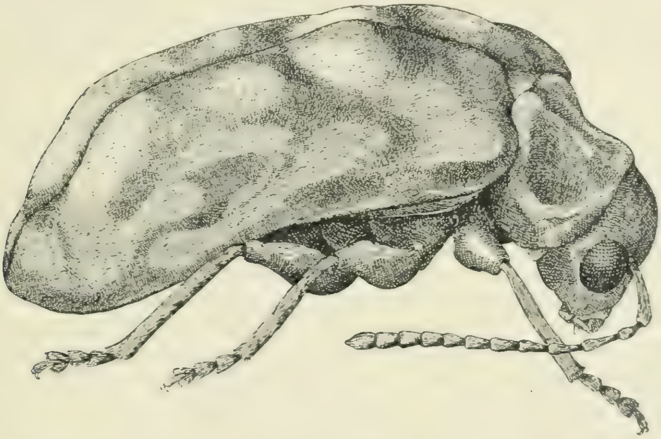

Fig. 69.—*Galerucella aurata* sp. nov.

strongly bisinuate, having a crest in the middle with an undulation on each side of it, and ends at the front corner in a second seta-bearing pore. Upper surface extremely uneven with depressions and elevations ; on each side a deep and large excavation full of coarse punctures. In consequence of these cavities the front, lateral and hind borders are somewhat raised ; along the middle also the area is raised, but here are in addition two minor depressions, one in front and the other behind. The raised areas may or may not be punctate, but when they are the punctures are always coarse. At least in one of our species the whole pronotum is concave. In the lateral excavations there are always hairs, but on the rest of the surface these may or may not be present. *Scutellum* triangular, with the apex truncate and the surface punctate and closely covered with hairs. *Elytra* broader at the base than the prothorax ; humerus strongly raised ; whole surface hairy, covered with coarse and large punctures ; punctures close to each other without actually touching, in no case arranged in a regular manner, large, sometimes round and deep, sometimes sparse, at least on the basal area ; in most species on each elytron a shallow depression on the middle area and two or three ill-defined rib-like elevations along the same area ; hairs arise separately and remain separate from each other, short, silvery, curved downward and directed posteriorly, scaly in appearance. This characteristic of the hairs also applies to those on the pronotum and head. The clothing of hairs and the character of the punctation are characteristic and should be taken into account in determining the allied genera. In one of our species the hairs are large and radiate from the centre of a depression. *Underside* covered with hairs, but this clothing of hairs is different from that of the upper side. Epipleuron broad at base and gradually narrows to a little extent towards the apex. Legs fairly long and slender and covered with hairs except upper surface of tibiæ, in some cases a longitudinal rib along the whole dorsal surface ; hind tibia somewhat longer than either the front or the middle ; tibia without an apical spine ; first segment of tarsus as long as the second, the latter being somewhat broader at the apex ; third bilobed ; fourth or the claw-segment very long ; claws bifid, the inner lobe very short and sharply pointed, arising from the inner side of the outer lobe ; in one of our species the inner lobe not small but quite well developed.

One characteristic of the genus is that its species tend to be very widely distributed.

Distribution. WORLD-WIDE.

Key to the Species.

1. Upper surface covered with silky hairs arranged radially from centres of depressed areas	3.
Upper surface not so characterized	2.
2. Front part of the middle area of pronotum not plane, and covered with coarse punctures; third segment of antenna about one-and-a-half times as long as the fourth	*G. placida* Baly, p. 217.
Front part at least of the middle area of pronotum plane, smooth and impunctate; third segment of antenna only slightly longer than the fourth	*G. birmanica* (Jac.), [p. 218.
3. Elytral surface behind the scutellum raised into a hump	*G. aurata* sp. n., [p. 219.
No such hump	4.
4. Suture blackish, each elytron with four regular longitudinal ribs	*G. aludela* sp. n., [p. 220.
Suture not blackish, each elytron with interrupted ribs	*G. digambara* sp. n., [p. 221.

80. **Galerucella placida** Baly.

Galerucella placida Baly, Cist. Ent. ii, 1878, p. 381; Sec. Yark. Mission, 1878, p. 34.

General colour dirty brown, with the following parts either black or piceous :—Eyes always black ; antennæ, apical area on the head, scutellum, underside and legs black or piceous ; the blackish colour tends to vary in extent and intensity, the legs may not be wholly blackish, the basal halves of femora are sometimes brown, the abdomen may be wholly brown or the sides may be blackish and central portion brown, similarly the underside of the meso- and metathorax may have the lateral portions blackish while the central area tends to be lighter; the antennæ are never wholly light but the points of articulation are sometimes browner; the apex of scutellum tends to be brownish in some cases.

Head : punctate, surface on the vertex covered with hairs, but not the interantennal raised areas nor the upper surface of the clypeus. Third segment of antenna much longer than fourth ; some of the hairs on the antennæ much longer than others and stand out more prominently. *Prothorax* : front and basal marginal lines strongly arched ; seta-bearing pores at the four corners very prominent. Besides the lateral depressions a triangular depression at the middle in front ; basal area in front of the scutellum also depressed. A rather convex shining margin across the front from side to side, and a similar though narrower margin across the base bear a few punctures but hardly any hairs, otherwise the surface is thickly covered with hairs. *Scutellum* : the truncate apex often with a small notch in the middle. *Elytra* : postscutellar area depressed; basal area rather convex, between this convexity and the prominently raised humerus a deep depression. Traces of longitudinal costæ on each elytron can be distinctly recognized when the insect is held at a certain angle. *Underside*: the inner lobe of the bifid claws very small but pointed.

Length, 5 mm.; *breadth*, 2·5 mm.

Distribution. KASHMIR: Srinagar, Dal Lake, 5,500 ft., ix. 1917. THE PUNJAB: Jhelum Valley (type-locality). UNITED PROVINCES: Kumaon, Naini Tal, ix. 1918 (*H. G. Champion*); Lucknow, Goomtia R., 29–30. iv. 1911 (*S. Kemp*). BIHAR: Pusa, 22. iii. 1921, "feeding on the leaves of *Polygonum glabrum*"; 21. vi. 1907, 17. viii. 1917 (*T. Ram*); Purnea, Kierpur, 4–8. x. 1915, "at light" (*C. Paiva*); Champarum, Hardia, 13. viii. 1907. BENGAL: Burdwan, ii. 1906; Sara Ghat, 26. vi. 1909, "at light" (*J. T. Jenkins*); Goalbadhan, 10. vii. 1909 (*R. Hodgart*); Chandpur, i. 1908; Dacca, Narayangunge, 2–7. vii. 1911. SOUTH INDIA: Coromandel, 2,500 ft., 23. x. 1910. BURMA: Rangoon, 18–30. ix. 1914 (*Fletcher*); Mandalay, 12. iii. 1908 (*N. Annandale*); Pyinmana, 400 ft., xi. 1915 (*Miss Molesworth*).

Food-plant: *Polygonum*.

I have before me an example of *Galerucella rugosa* Jacoby (1884) from Sumatra which was identified by Jacoby himself, and I can find no difference between this species of Jacoby and *G. placida* Baly. As I have not seen the type-examples of either of the two species I do not wish to express a definite opinion, but I feel, as a result of looking at a very large number of examples, that *Galerucella placida* Baly has a very wide distribution, reaching Indo-China and Tonking on the east and Sumatra and Java on the south, and probably *G. rugosa* Jac. is nothing but *G. placida* Baly.

Type location unknown to me, probably in the Indian Museum, Calcutta.

81. **Galerucella birmanica** (Jacoby).

Lochmæa birmanica Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 215.

General colour yellow-brown to dark brown; eyes black; antennæ and tibiæ slightly and tarsi definitely piceous. In some cases the antennæ are quite black, while in others much of the basal parts of the proximal segments are brownish. In some cases the tibiæ are blackish.

Head: the punctate surface on the vertex covered with hairs, but not the raised interantennal areas nor the upper surface of the clypeus. Third segment of antenna longer than fourth, but not to such an extent as in *G. placida* Baly. *Prothorax* : the front and basal marginal lines much more strongly arched than in *placida*. A large area along the middle and a certain basal area in front of the scutellum smooth and impunctate ; in some cases the longitudinal middle smooth area broken towards the base ; lateral depressed areas punctate and full of hairs ; in the posterior part of each lateral depression is a raised portion. *Scutellum* : the truncate apex without a notch. *Elytra* : basal area on each side of scutellum strongly convex ; postscutellar area very strongly depressed, much more so than in *placida* ; longitudinal ribs and postmedian depression more marked. The punctures are close together, but become more sparse on the basal convex area ; some punctures are larger and deeper than others. The hairs are short and grow in such a way as to leave some parts bare, especially the convex parts.

Destructive to the Singhara or waternut crop (*Trapa bispinosa*), destroying the leaves of this valuable plant.

Length, 6·75 mm. : *breadth*, 3·25 mm. ; the Indian specimens are somewhat smaller, measuring 6 × 3 mm.

Distribution. CENTRAL PROVINCES : Bhandara, Sondad, 3. xii. 1912, 18. viii. 1906 ; Sakartala, ix. 1907, "Singhara." BIHAR : Muzafferpur, 16. xi. 1907, 30. xii. 1907, "Singhara leaf" (Pusa Coll.). ASSAM : Kalsi (*H. G. Champion*). Although on the printed label the name of the locality is given as stated here, it does not seem correct to me. BURMA : Bhamo (*Fea*).

Type in the British Museum.

82. **Galerucella aurata** sp. nov.

Golden-brown ; a large hump behind the scutellum and several depressions on the elytra.

Head with the upper surface covered with silky hairs ; frontal tubercles small and hairless. Antenna extending to the middle of elytron ; first segment longer than second and third together ; second slightly more than half of third ; fourth nearly equal to third ; fifth shorter than fourth ; sixth slightly shorter than fifth ; from seventh to apex the segments thicker ; seventh shorter than sixth ; eighth, ninth and tenth equal ; eleventh bluntly pointed. *Prothorax* somewhat narrower at base, the upper surface deeply concave ; front margin straight ; posterior margin emarginate in the middle ; lateral margin convex in front of middle ; a deep longitudinal channel in the middle with a depression on each side ; all this in the general concavity ; the silky hairs radiate from the centre of the depressions. *Scutellum* somewhat abruptly narrowed at the apex, deeply imbedded, so that the surrounding elytral surface is at a much higher level. *Elytra* : behind the scutellum a strongly raised hump which stretches from one humerus to the other, rising to the highest peak on the suture behind ; on each elytron a median and postmedian depression ; lateral marginal longitudinal area concave ; on the apical area a depression on suture common to both elytra ; sparsely punctate, punctures not clearly visible owing to rather thick covering of the silky hairs.

Length, 3·5 mm. ; *breadth*, 2 mm.

Distribution. Nilgiri Hills (*T. V. Campbell*).

Type in the British Museum.

Described from one example.

83. **Galerucella aludela** sp. nov.

Upper side dull brown generally ; antennæ, underside, legs, vertex of head, median longitudinal line on pronotum, scutellum and suture blackish ; hairs on mouth-parts and underside whitish, those on head, pronotum and elytra golden-brown ; under a higher magnification a shining silkiness of the golden-brown hairs is observed.

Head : upper surface depressed, with a median impressed line continuing as a ridge between the roots of antennæ ; frontal tubercles flat ; clypeus covered with hairs on the upper side, front portion hairless ; labrum small, broader than long, with a few scattered hairs ; mouth-parts shining ; mandibles large, maxillary and labial palpi short and inconspicuous. Eyes strongly convex. Antenna short, stoutish, extending a little beyond the humerus, first segment thicker and not longer than third, not distinctly club-shaped ; second a little longer than half of third ; fourth equal to third ; fifth to eighth slightly thicker than third and fourth ; fifth somewhat shorter than fourth ; fifth to eighth almost equal to each other ; ninth very slightly shorter than eighth ; ninth and tenth equal ; eleventh pointed, longer than tenth. *Prothorax* : upper surface much excavated in the middle area, with a longitudinal median depression and a large one on each side, laterally sloping in front ; the hairs in the large depressions on each side of the median line radiate from their centres ; the depression along the median line very deep ; basal margin very slightly emarginate in the middle. *Scutellum* broader at base than at apex, surface somewhat convex, minutely punctate and covered with fairly long hairs. *Elytra* broader at base than the prothorax ; humerus prominent ; on the inner side of humerus a deep sulcus close to the second elytral costa ; on each elytron four longitudinal parallel costæ ; surface covered with punctures which are small and separately situated, the intervening surface and the whole background shagreened ; hairs backwardly directed, somewhat adpressed and arranged in such a way as to form regular lines along the ribs ; hairs which are not actually on the ribs are more or less directed towards them. *Underside* generally shining, sparsely covered with fine hairs. Epipleuron of almost uniform breadth throughout except at the extreme apex, where it is narrower, and at the extreme base, where it is slightly broader. Legs stoutish ; hind femur stouter than either the middle or front femur, but without the internal organ found in Halticine hind femur ; claws bifid, both branches sharply pointed, the inner somewhat shorter.

Length, 5 mm. ; *breadth*, a little more than 2 mm.

Distribution. BURMA : Ruby Mines (*Doherty*).

Type in the British Museum.

Described from six examples.

84. **Galerucella digambara** sp. nov.

General colour dark brown, with dark or blackish patches distributed as follows :—Portions of clypeus, labrum, palpi, mandibles, eyes, the flattened area on the vertex of head, the upper sides of apical portions of first four segments, and the whole apical portions of seven distal segments of antenna ; on pronotum a central longitudinal and two lateral bands, one on each side, all ill defined ; scutellum completely ; on each elytron (the costæ being more prominent in this species the distribution of the ill-defined patches can be indicated with reference to them) between the suture and the first prominent costa the black colour spreads from the base to the apex, but is considerably broken and interrupted at several places ; the black colour between the first and second costæ is much more interrupted, giving a patchy appearance ; a large postmedian depression the black colour of which has spread narrowly forwards ; area below the humerus ; centres of elytral punctures ; complete metasternum ; small median patches on all tibiæ ; some very diffused patches on the sides of all femora ; the entire claw-segment. The intensity of the blackish colour varies from a deep shade to a brownish one. As the boundaries of all the patches are diffused a considerable variation in their sizes and their relation to each other arises.

Head : the raised portions of clypeus sharp ; some scattered silvery hairs on the clypeus and labrum ; the black area on the vertex punctate and covered with hairs similar to those on the body. The antenna thickens somewhat towards the apex ; third segment longer than fourth but not so long as in *placida* ; second about half the length of third. *Prothorax* : upper surface generally depressed ; a lateral depression on each side and a median longitudinal one ; front margin raised and with a channel from one end to the other, its boundaries being the two sharp edges ; hind margin slightly arched ; each hair-bearing pore on the four corners fairly prominent but not so much as in *placida* ; the convexity of the sinuate lateral margin strong ; the whole surface covered with silky whitish hairs radiating outwards from the centre of a depressed area. This radiating arrangement from all the depressions, which also occurs on the elytral surface, imparts a characteristic appearance to the insect. *Scutellum* : surrounded by a slight depression ; surface rough ; the hairs converge towards the centre from all sides. *Elytra* : surface very uneven, having many elevations and depressions, as follows :—Postscutellar area deeply depressed ; basal area on each side of the scutellum raised, between this raised portion and the humerus a depression ; postbasal area depressed and divided into two by a costa ; between the median and apical areas two longitudinal depressions divided by costæ ; on each side just behind the middle a large depression ; longitudinal lateral area below the humerus deeply channelled ; two small depressions on the extreme apical area. *Underside* sparsely covered with straight hairs. Each tibia with a median longitudinal rib ; the inner lobe of each claw long, but somewhat smaller than the outer lobe.

Length, 5·5 mm. ; *breadth*, 3 mm.

Distribution. North-west Himalayas, defoliating *Melisoma dillenifolia* (*E. P. Stebbing*). Punjab : Bashahr, Kadrala, 9,000 ft. (*H. G. Champion*). Simla Hills : Huttoo, 10,000 ft. (*H. G. Champion*). Western Almora : Sunderdhunga Valley, 8,000–12,000 ft. (*H. G. Champion*).

Type in the British Museum.

Described from fifteen examples.

Genus **GALERUPIPLA** gen. nov.

Genotype, *Galerupipla brunnea* sp. nov.

This is a monotypic genus.

Small beetles ; body oblong with the apex rounded ; upper and undersides covered with hairs ; claw-segment of tarsus as long as all the other segments together.

Head slightly narrower than the front border of the prothorax; upper surface with a median longitudinal impressed line ; frontal tubercles almost flat but clearly delimited ; clypeus raised ; labrum broader than long, with a slight emargination in front and almost covering the mandibles, which are not very large. Eyes not very convex. Antenna short, stoutish, extending a little beyond the humerus ; first segment thick, club-shaped ; second small and thickened ; third and fourth about equal ; fifth shorter than fourth ; sixth small, shorter than fifth ; seventh to eleventh segments very short, about equal, slightly thickened ; seventh a little produced at the outer apical angle ; eleventh with the apex sharply pointed. *Prothorax* broader than long ; basal margin narrower than the front margin, slightly emarginate in the middle ; sides sinuate ; each corner with a seta-bearing pore ; upper surface punctate, rugose, with a large, fairly deep excavation on each side of the middle longitudinal line, sloping down on each side in front. *Scutellum* broad, triangular, with apex rounded, thickly covered with whitish hairs. *Elytra* broader at base than the prothorax ; humerus not very prominent ; surface closely and confusedly punctate, and covered with whitish, scale-like hairs. *Underside* sparsely covered with fine longish hairs ; epipleuron as broad at base as at the middle, but narrowing somewhat to the apex, with the surface concave. Legs fairly long,

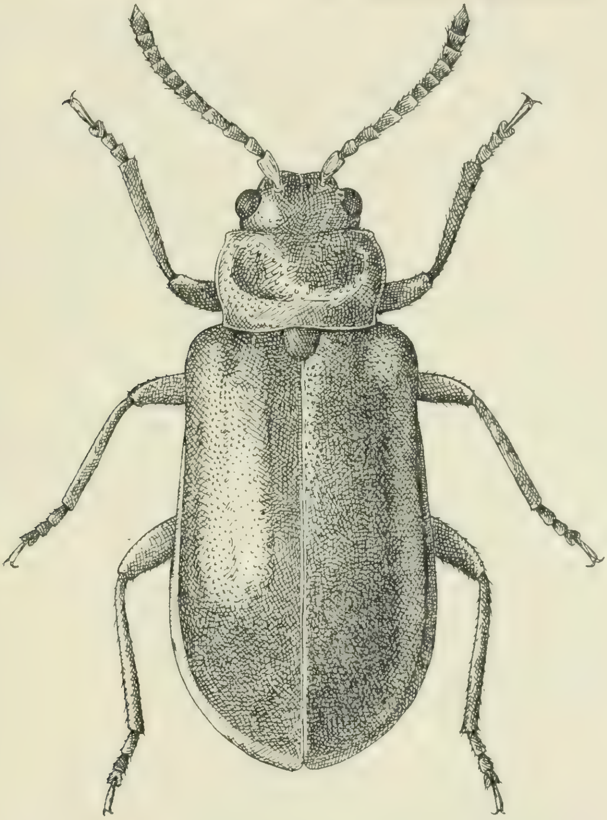

Fig. 70.—*Galerupipla brunnea* gen. et sp. nov.

slender, hind legs longer than either the front or middle legs; claw-segments of all tarsi very long, other segments of tarsi narrow, bilobed segment feeble; claws long, each showing a slight splitting on the inner margin, the splitting more evident in the front and middle claws than in the hind ones.

Distribution. INDIA.

85. **Galerupipla brunnea** sp. nov.

Brown, subnitid, six apical segments of antenna blackish, apices of third, fourth and fifth ringed with piceous.

Head with the upper surface slightly depressed, closely punctate and covered with hairs; frontal tubercles shining, smooth, impunctate, and each with a slight dimple in the middle. *Prothorax*: depressions crowded with punctures, some places, especially along the middle, smooth, shining and impunctate, a slight depression in the middle in front, each corner in front a rounded right angle, each posterior corner widely rounded. *Elytra*: each puncture well impressed, bearing a single backwardly-directed short curved hair; seen in certain angles several faint and imperfect costæ on each elytron, one parallel to the suture, a second along the middle, a third in the line of the humerus and a fourth below it; surface below humerus rather concave; lateral margins faintly reflexed; humerus punctate; suture slightly raised. *Underside*: the clothing of hair thicker on the abdominal sternites, sparse on the femora and thicker on the tibiæ; first segment of hind tarsus longer than the corresponding segment of either the front or middle tarsus.

Length, 5 mm.; *breadth*, 2·5 mm.

Distribution. PESHAWAR: Taru, 6. vi. 1916, "Common on *Cajanus indicus*, also on apple" (*T. B. Fletcher*).

Type in the British Museum; *paratypes* in Pusa Agricultural Institute.

Described from eleven examples.

Genus **HYMENESIA** Clark.

Hymenesia Clark, Ann. Mag. Nat. Hist. (3) xvi, 1865, p. 259; Chapuis, Gen. Col. xi, 1875, pp. 198, 199.

GENOTYPE, *Galleruca tranquebarica* Fab. Fixed by Clark.

This is a monotypic genus.

Body oblong, broad, parallel-sided, slightly narrowed behind the shoulders and with the apex rounded. Head and pronotum more shining than the elytra, which are subnitid. Antennæ extending a little beyond the humerus, with the segments much thickened. Body generally covered with hairs except the pronotum, which is smooth.

Head exserted ; seen from above the upper side is sloping towards the front, the vertex convex, but the front surface somewhat flat, with a finely impressed line along the middle ; two triangular-shaped areas behind the roots of antennæ, somewhat raised, and with a median channel which is continuous with the median line from the vertex. The clypeus is strongly and steeply raised in front, with the raised margin somewhat emarginate in the middle and with a few scattered fine long hairs. Anterior to the steep front of the clypeus is a narrow, transverse and flat portion which lies over the labrum. The latter is broader than long, with the front edge slightly emarginate, with a few punctures and long fine hairs. The mandibles are large and not completely covered by the labrum. Seen from below the maxillary palpi are conspicuous and long, each being composed of four segments besides the base ; the last segment small and conical and almost embedded in the penultimate segment, the first segment from the base small, the second longer. The three-segmented labial palpus is also conspicuous. The lower mouth-parts are covered with long fine hairs. Compared with the size of the head the eyes are not very prominent. The antennæ are covered with bristles except the first two segments, which have fewer bristles ; the structure of the antenna of the male is different from that of the female, as described below. *Prothorax* about three times broader than long, slightly narrower than the base of the elytra ; front margin very slightly arched, basal margin slightly more sinuate, lateral margins widely rounded and continuous with the basal margin, so that each lateral posterior corner is very obtuse, and the hair-bearing pore is not raised ; but the hair-bearing pore at each anterior corner is more prominent. The upper surface is uneven, punctate, sloping down on each side. *Scutellum* triangular, with the apex rounded and the surface shining, sparsely and finely punctate, fine hairs arising from the punctures. *Elytra* coarsely and confusedly punctate, the punctures being large and touching each other, thus producing a rugose appearance. Below the humerus the surface is steep. Each lateral margin is very slightly explanate, this explanate margin being shining, impunctate and without hairs. *Underside* more sparsely covered with fine hairs than the upper surface. The epipleuron is broader at the base and, narrowing and becoming slanting behind the middle, disappears towards the apex. The legs are fairly robust, covered with more hairs, becoming bristly on the lateral margins of tibiæ. Each femur narrowed toward the apex and with a smooth surface along the middle on the underside. Each tibia is broadened towards the apex, where the bristles become spiny ; the upper surface hairless and with a longitudinal ridge along the middle. The first segment of a tarsus longer than the next, the third segment bilobed and the claw-segment very long. The first segment of the hind tarsus is longer than the corresponding segment of either the front or middle tarsus. Claws bifid, the smaller inner lobe arising from the side of the outer.

Distribution. INDIA. BURMA. CEYLON.

86. **Hymenesia tranquebarica** (Fabricius).

Galleruca tranquebarica Fab., Suppl. Ent. Syst. 1798, p. 95; Syst. El. i, 1801, p. 479.

General colour purple mixed with red; in several examples this colour tends to assume a dull brown shade; part of the third and the remaining segments of antenna, the legs and underside, except that of prothorax, black. A U-shaped patch covering the apical portions of both elytra deep blue,

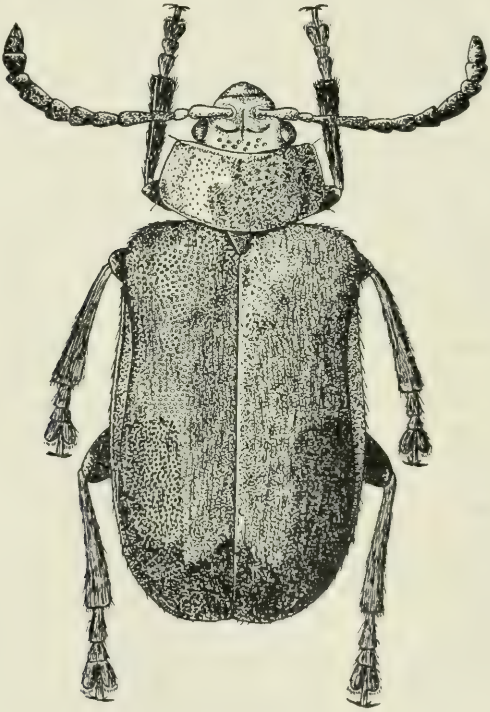

Fig. 71.—*Hymenesia tranquebarica* (Fab.).

each arm of the patch reaching almost to the middle of the elytron, but not covering the lateral margin ; the inner angles formed by the arms of the U are sharp. In a male example the four basal segments of antenna and the fore-legs almost entirely brown, but with ill-defined blackish patches in places. The elytral hairs yellowish.

Head with a few large punctures on the front area ; the triangular raised areas behind the bases of antennæ finely granulate. (For antennæ see below.) *Prothorax* with the upper surface sparsely covered with a mixture of coarser and finer punctures. There are several depressions : one along the basal margin in the middle, a shallow ill-defined longitudinal depression on slightly raised middle area, and lastly on each side of the latter one round depression. The depth of depressions vary considerably, and some may be almost obsolete.

Other structural features are as described under the genus.

Secondary sexual characters of ♂. (1) Antenna : the first segment club-shaped, second very small and rounded ; third narrowed at base and broadened towards the apex, shorter than fourth ; fourth dorso-ventrally flattened, much narrower at base ; fifth with the base not much narrower than the apex, dorsal surface of the base depressed ; sixth similar and equal to fifth ; seventh similar but smaller ; eighth large, convex on the dorsal surface, slightly concave, smooth and hairless on the ventral surface, and with the inner angle produced and rounded ; ninth very small, with the base narrow and apex much broadened and rounded : tenth similar but much larger though not much longer ; eleventh small, conical and inserted by a narrow base in the middle of the apical cup-like surface of tenth. The antenna of the female is similar in structure but the eighth segment not so large, without the smooth and hairless ventral surface, and without the inner apical angle being produced. In one female the last two segments tend to fuse on the ventro-lateral surface. (2) The last visible apical sternite with a deep emargination in the middle which is absent in the female.

Length, 10–11·5 mm. ; *breadth*, 5–6 mm.

Distribution. SOUTH INDIA : Pondichery ; Nilgiri Hills (*H. L. Andrewes*). CEYLON : Vavunlya, 20. xii. 1923 (Colombo Museum).

Fabricius described this species from an example in the collection of Daldorf.

Type in the University Museum at Kiel.

Genus **CLITENA** Baly.

Clitena Baly, Trans. Ent. Soc. Lond. (3) ii, 1864, p. 229; Weise, Archiv f. Naturgesch. lxviii, Band 1, 1902, p. 157.

Mesodonta Baly, Ent. Monthly Mag. ii, 1865, p. 99; Ann. Mag. Nat. Hist. (5) iv, 1879, p. 111; Chapuis, Gen. Col. xi, 1875, pp. 198 & 205.

Genotype, *Clitena limbata* Baly (Siam). Fixed by Baly.

Body oblong, parallel-sided, with the apex rounded. Upper surface including the head, pronotum, scutellum and elytra hairy.

Head exserted, narrower than the prothorax; the middle of the frontal area somewhat flattened and punctate and with a median longitudinally impressed line: the elevated regions behind the roots of antennæ fairly prominent, with a deep longitudinal channel between them and a transverse one behind; clypeus triangularly elevated, sparsely covered with long hairs; labrum small, not covering the mandibles. Eyes not strongly convex. Antenna extending to about the middle of elytron in the female, but nearly to the apical region in the male. In both male and female antennæ first segment club-shaped; second very short and rounded towards the apex; third club-shaped but thinner than first; these three segments are shining and with the surface smooth; from the fourth to the eleventh the segments are laterally flattened, covered with fine greyish hairs, and with granulate surface; in the male the segments are proportionately longer, but the flattening appears to be thinner, particularly in the three apical segments, which are concave on the underside. In both sexes fourth segment of antenna longer than fifth; fifth, sixth and seventh almost equal; eighth slightly shorter than seventh but longer than ninth; ninth, tenth, eleventh about equal, the last pointed at the apex. *Prothorax* much broader than long, with the front and basal margins slightly arched and the lateral margins sinuate; the posterior lateral angles rounded, anterior ones acute, each with the seta-bearing pore prominent; the seta-bearing pore at each posterior corner though present is not prominently raised. The upper surface punctate, sparsely covered with hairs, and with several depressions, the lateral ones being larger than the others. *Scutellum* triangular, with the apex rounded and finely punctate, each puncture bearing a fine hair. *Elytra* broader at the base than the prothorax. The upper surface is very closely and irregularly covered with punctures; these are deep, rounded or squarish, and touch one another in such a way that the interstices only form the recognizable surface, and they affect the light in such a manner as to impart to it a dull appearance. The greyish-yellow hairs are so fine that sometimes the darker portions cannot be seen except under a high magnification.

Underside punctate and thinly covered with long silky and fine hairs. The epipleuron is broader at base, then, narrowing, becomes vertical and disappears altogether towards the apex. The legs are fairly long, the femora are somewhat thickened in the middle and the tibiæ gradually broaden towards the apices. The hairs on the tibiæ are stiff and bristly and at the apex they are almost like spinules; sometimes one of these at the apex of the middle tibia is enlarged. The upper side of each tibia has a longitudinal median ridge and is devoid of bristles or hairs. The first segment of the hind tarsus is somewhat longer than the corresponding segment of either front or middle tarsus. The claws are bifid.

Distribution. AFRICA. BURMA. SIAM. INDO-CHINA. BORNEO.

87. **Clitena limbata** Baly.

Clitena limbata Baly, Trans. Ent. Soc. Lond. (3) ii, 1864, p. 230; Ent. Monthly Mag. ii, 1865, p. 99; Ann. Mag. Nat. Hist. (5) iv, 1879, p. 111; Weise, Archiv f. Naturgesch. Band 1, lxviii, 1902, p. 157.
Hymenesia limbata Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 297.
Clitena cincta Laboissière, Ann. Soc. Ent. France, xcvi, 1927, p. 51.

General colour brown. Antennæ, apical half of each femur, tibiæ and tarsi black; an ill-defined, obsolescent patch on the front area of the head and two similar patches on the pronotum, each approximately occupying the depression on the lateral area, blackish; the pronotal patches are sometimes very large, each covering almost one half of the pronotum, but never spreading over the longitudinal middle area; when the pronotal patches are larger the patch on the head is more prominent, but when the former are reduced the latter is more obsolescent, in some cases disappearing altogether. Each elytron is violaceous black, with the lateral margins all round, the suture and the scutellum brown. In some cases the brown sutural stripe may be narrow. The hairs on the upper side are yellowish.

Head: the punctures not very close together and confined to the front part only; other parts, for example the neck and area behind the eyes, smooth and impunctate. *Prothorax*: the upper surface very uneven, a median depression near the base, two principal large depressions, one on each side; smaller depressions on the extreme marginal areas, laterally as well as basally. The punctures are fairly close together except for a varying indistinct longitudinal area in the middle. The hair-covering is sparse. *Scutellum* hair-covering is thicker at the margins than in the middle, in some cases there is a little depression at each side. *Elytra*: the shoulders are prominent, otherwise the whole surface is even.

Secondary sexual characters of ♂. (1) In the male the antennæ are longer and the flattening of the segments except the first three is more accentuated. (2) In the male the last visible sternite contains a deep and large concavity, which is smooth inside, with the edges sharp, and containing a few hairs near the apical region.

Length, 10–11 mm. (females), 9 mm. (males); *breadth*, 5–6 mm. (females), 4·5 mm. (males).

Distribution. BURMA: Paungde; Tharrawaddy; North Chin Hills. SIAM. INDO-CHINA: Tonking, Laos. BORNEO (Coll. Nonfried, one female example in the British Museum).

Baly first described the species from a male example from Siam. Jacoby described *Hymenesia limbata* from one male example in Andrewes' Collection. Laboissière described *Clitena cincta* from examples from Indo-China. I have seen Baly's and Jacoby's types, which are in the British Museum, and also a co-type of Laboissière's species, and I am of the opinion that they all belong to one species, to which Baly's name, being the first, should be applied.

Genus **LUPEROCELLA** Jacoby.

Luperocella Jac., Mém. Ent. Soc. Belg. vii, 1900, p. 130.

GENOTYPE, *Luperocella hirsuta* Jac.

This is a monotypic genus.

Oblong, with the apex rounded and sides parallel, with a slight constriction in the middle. Completely covered with long whitish hairs which are longer on the elytra and legs than on other parts of body. *Head* as broad as the prothorax; upper side rugose. Antenna extending to a short distance beyond the middle of elytron, fairly robust; first segment very long and thickened; second very short; third shorter than fourth. *Prothorax* cylindrical, without definite margins to the sides, somewhat narrowed posteriorly; upper surface rugose, sloping on each side, with a depression on the lateral surface; each corner with a seta-bearing pore. *Scutellum* triangular, with the apex rounded. *Elytra* much broader at base than the prothorax; humerus prominent; surface rugosely punctate; elytral punctures of the same kind as those of pronotum. *Underside* sparsely covered with fine hairs; epipleuron broader at base, gradually narrowed and continued a little behind the middle. Legs long and slender; tibiæ almost as long as femora; tarsi long, first segment of posterior tarsus longer than corresponding segment of either front or middle tarsus, and almost equal to two following segments together; bilobed segment slender; claw-segment very long, projecting much beyond the bilobed segment; claws strongly bifid, the inner branch smaller than outer.

Distribution. BURMA.

88. **Luperocella hirsuta** Jacoby.

Luperocella hirsuta Jac., Mém. Ent. Belg. vii, 1900, p. 130.

Black with a bronzy sheen on the upper side; underside generally, a narrow elytral lateral margin becoming wider towards the apex, labrum, roots of antennæ, maxillary palpi and legs generally pale to dark brown; abdominal sternites blackish, deeper towards the middle than at the sides and apex; points of articulation between femora, tibiæ and tarsi, and proximal segments of antennæ black without bronzy sheen, apical segment lighter.

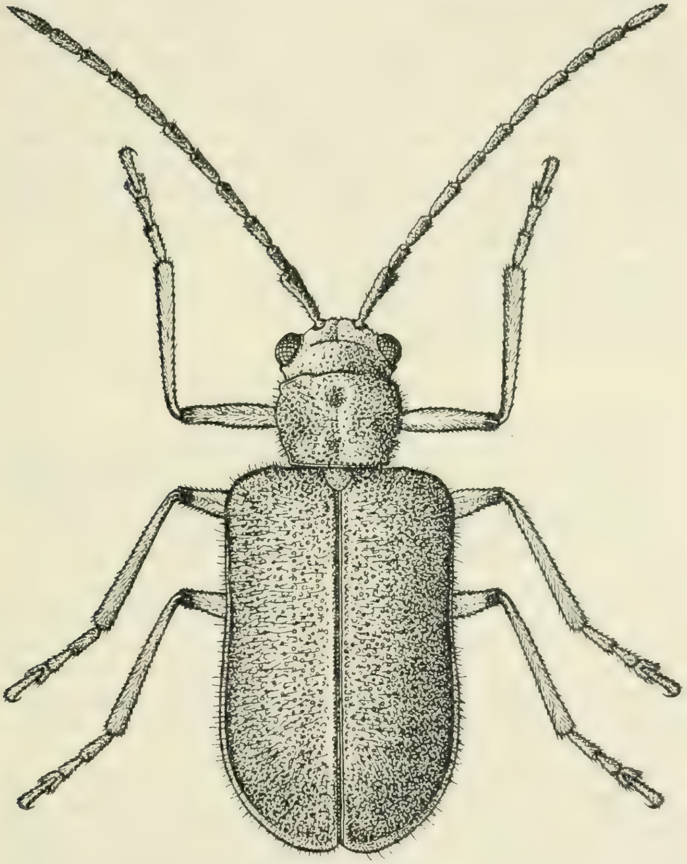

Fig. 72.—*Luperocella hirsuta* Jacoby.

Head: frontal tubercles hardly pronounced, punctate, with deep longitudinal cut between them, widening in front to the clypeus; clypeus raised, punctate, hairs long, fine, erect; labrum large, broader than long, with the apical margin emarginate in the middle, impunctate; hairs long and erect. Third segment of antenna about twice as long as second; fourth longer than third; fifth shorter than fourth; sixth very slightly shorter than fifth; seventh truncate at apex, about equal to sixth; eighth equal to seventh; ninth very slightly shorter than eighth; ninth and tenth equal; eleventh with a pointed apex, longer than tenth. *Prothorax*: sides somewhat convex in front of middle; the punctures, though of similar size to those of elytra, are more closely placed, but do not often coalesce. *Scutellum* with the punctures obsolete. *Elytra*: the rugosity is produced by some small spots here and there being raised.

Length, 6–6·5 mm.; *breadth*, 3 mm.

Distribution. BURMA: Tharrawaddy.

Type in the British Museum.

Genus **DIORHABDA** Weise.

Diorhabda Weise, Deutsche Ent. Zeitschr. xxvii, 1883, p. 316; Ins. Deutschl. vi, 4, 1886, pp. 578, 633; Jacobson *, Öfver. Finska Vet.-Soc. Förh. xliii, 1901, p. 137, Anm. 1; Reitter, Fauna Germ. iv, 1912, p. 135.

Radymna & *Prophyllis* Reitter, Fauna Germ. iv, 1912, p. 135.

GENOTYPE, *Galerucella elongata* Brullé. Fixed by Weise.

Body oblong, narrowed towards the apex of elytra. From the humerus to the apical area is a ridge overhanging the lateral edge, the area between the ridge and the edge being concave. Even if the elytral surface is otherwise not hairy this concave surface at least contains fine hairs. Claw-segment of tarsus almost as long as the first two segments together in the genotype; the claws also very long.

Head as broad as the front border of the prothorax, the upper surface hardly depressed in the genotype, and with a median longitudinal line. Antenna stoutish, short, hardly reaching the middle of elytron; first segment club-shaped, somewhat longer than third; second small; third slightly longer than fourth or may be equal; the subsequent segments become very slightly thickened; completely covered with hairs, more thickly on the apical segments. *Prothorax* broader than long; front and posterior margins more or less straight in the genotype, the latter narrower than the former;

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* Jacobson draws attention to the fact that "*Dirrhabda*" is the more correct spelling.

lateral margins rounded ; upper surface not depressed in the genotype, sloping down on each side in front ; each corner with a seta-bearing pore. *Scutellum* somewhat triangular, with the apex very broadly rounded, but this character is not found in the Indian species. *Elytra* somewhat broader at base than the prothorax ; humerus prominent ; each lateral margin somewhat explanate, this character is prominent in the genotype ; upper surface somewhat flattened along a longitudinal area on each side of the suture ; completely covered with punctures ; sometimes shining and sometimes subnitid. *Underside* shining, sparsely covered with fine hairs ; epipleuron not continued to the apex in the genotype, as broad at base as at about the middle, where it begins to disappear, its surface convex, impunctate ; legs not very long, hind tibia somewhat longer than either the middle or the front tibia ; tarsus slender, lobes of the bilobed segment feeble ; claws bifid, this character is peculiar (at least in the genotype) in that only a little split on the inner side of a claw indicates the bifid nature.

Distribution. South Europe. Transcaucasian region. Burma. Sumatra. Mongolia.

Key to the Species.

1. Elytra with blackish stripes	2.
Elytra without stripes	*D. brevicornis* Jac., [p. 233.
2. Excluding the suture, two longitudinal stripes on each elytron	*D. lusca* sp. n., p. 234.
One stripe on each elytron	*D. trirakha* sp. n., [p. 236.

89. **Diorhabda brevicornis** Jacoby.

Diorhabda brevicornis Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 214.

Obscure testaceous ; antennæ (two basal segments excepted, which are shining fulvous), tibiæ and tarsi black ; labrum piceous.

Head finely rugose, sparsely pubescent, with a narrow median channel ; frontal tubercles trigonate, coarsely punctate, bounded behind by a short, transverse, but distinct impression ; clypeus narrowly transverse ; penultimate segment of palpi rather stout, but not thicker than the preceding segment, terminal segment acutely pointed. Antenna short, distinctly thickened, hairy (except two basal segments) ; third and fourth segments equal ; the rest shorter. *Prothorax* twice as broad as long ; sides obtusely angulate in the middle ; posterior angles oblique ; upper surface with a round and distinct depression at each side and a less distinct longitudinal impression in the middle, finely rugose and pubescent. *Scutellum* broad and elongate, its apex truncate, surface rugose and pubescent. *Elytra* rather convex, closely punctate and finely rugose throughout, sparsely pubescent. *Underside*: epipleuron continued behind the middle. Middle tibia with a short thorn, the others unarmed; first segment of posterior tarsus scarcely longer than the following segment; claws bifid, long and slender.

Length, 6–7 mm.

Distribution. Burma: Bhamo, vii.–viii.

Type in the Genoa Museum.

I have not seen this species. The above description is taken from Jacoby's original account.

90. **Diorhabda lusca** sp. nov.

General colour brownish-grey with black or blackish spots and stripes as follows:—A squarish spot on upper surface of head in the middle, in some cases the tubercles also; little patches on the upper sides of antennal segments; on the pronotum a group of three in the middle (one basal and two in front, one on each side of the middle) and two lateral, one on each side, situated on the outer edge of the depression, five in all; two obvious longitudinal stripes on each elytron; the suture seems to have a faint stripe, and on each side in the concavity below the ridge a faint trace of a broken stripe; traces of obsolescent patches on the metasternum, abdominal sternites and on portions of legs. The spots on the head and pronotum deep shining black; five or six apical segments of antenna pitch-brown; colour of the elytral stripes never bold, even in the most melanic examples they look a faded black; on the underside also the blackish colour is never strong. Head and pronotum shining, elytra less shining.

Head: upper surface slightly depressed, not very closely covered with punctures; not hairy; median longitudinal line; frontal tubercles smooth, shining, impunctate, and the raised portion rounded; labrum somewhat large, broader than long, with apical margin almost straight. Antenna extending a little beyond the humerus; third segment very slightly longer than fourth; fourth to ninth thicker, about equal, seventh appears somewhat longer; tenth very slightly shorter than eighth; eleventh bluntly pointed but not much longer than ninth. *Prothorax*: front and posterior margins each with a slight emargination in the middle; upper surface with a large rounded depression on each side of the longitudinal middle line, sparsely covered with punctures, without hairs. *Scutellum* large, flat, with the base along pronotal margin straight, sides rounded, and continuous with them the apical margin also rounded, smooth, impunctate, margins fringed with fine hairs. *Elytra*: punctures confused, but there is a tendency towards a longitudinal arrangement; lateral hairs longer, hairs on the flatter median surface very short and only recognizable in certain lights; lateral explanate margins not so pronounced as in *D. trirakha*. *Underside*: sparsely covered with hairs, shining; epipleuron almost as broad at base as at the middle, and continued beyond that point but narrowing slightly, not continued to the apex; claw-segment of tarsus very long.

Length, 5 mm.; *breadth*, 2·5 mm.

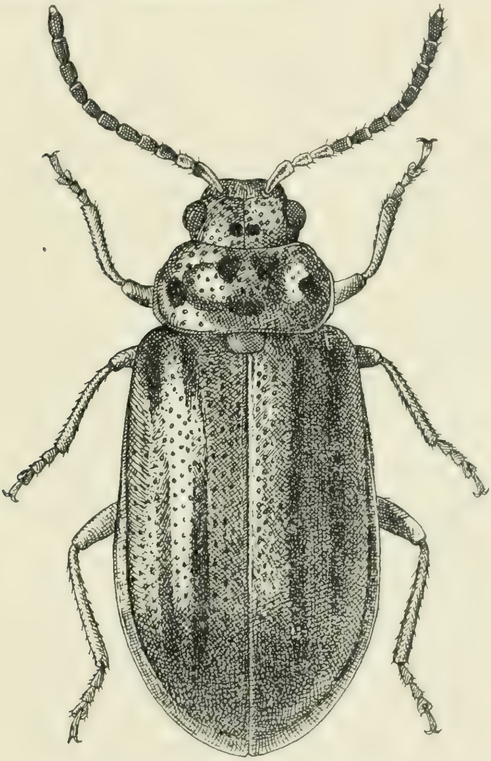

Fig. 73.—*Diorhabda lusca* sp. nov.

Distribution. UNITED PROVINCES: Dehra Dun, New Forest 29. v. 1928, defoliating *Celtis occidentalis*. On the label it is remarked that this species was collected with larvæ, but I have not seen the latter. WESTERN HIMALAYAS: Simla, Kasauli, 16. v. 1908 (*N. Annandale*, Ind. Mus.).

Type in the British Museum; *paratypes* in the Indian Museum and in the Forest Research Institute, Dehra Dun.

Described from five examples.

91. **Diorhabda trirakha** sp. nov.

General colour dull brown, with following parts black or blackish :—Upper surface of antennal segments ; frontal tubercles ; vertex of head ; a short stripe from the vertex to the tubercles, but not quite meeting them ; three elongate and broad patches on the pronotum, one median and two lateral, one on each side ; base of scutellum ; three longitudinal stripes on both elytra, one along the suture covering some space on each side, broader at base but not completely staining the basal area on each side of scutellum, and obsolescent towards the apex, in some cases even if the stripe becomes obsolescent towards the apex the sutural black always continues to the apex ; lateral stripe on each elytron fairly broad and commencing from the humeral base extends to the apical area without reaching either the side or the suture, it includes the lateral ridge, but does not quite reach the margin or middle longitudinal line ; metasternum and abdominal sternites ; sometimes a streak on the upper side of legs ; four apical segments of antenna ; upper side subnitid.

Head : upper surface somewhat depressed, coarsely punctate, covered with whitish hairs ; median longitudinal channel continues between the frontal tubercles which are smooth and impunctate ; clypeus sharply raised ; labrum broader than long, with the upper surface somewhat convex, front margin round, and a bunch of long hairs near the base at each corner. Antenna extending to the middle of elytron ; second segment nearly half of third ; fourth and fifth almost equal ; sixth very slightly shorter than fifth ; seventh almost equal to sixth ; eighth slightly shorter than seventh ; ninth nearly equal to eighth ; tenth slightly shorter than ninth ; eleventh bluntly pointed at the apex, convex below, and not longer than tenth. *Prothorax* : front and posterior margin each with a slight emargination in the middle ; upper surface transversely and widely depressed across the middle, completely covered with punctures and fine whitish hairs ; seta in each corner long. *Scutellum* : almost as broad as long, with the apex broadly truncate and somewhat depressed at the apical surface ; upper surface punctate and sparsely covered with hairs. *Elytra* : lateral margins fairly explanate ; upper surface everywhere covered with longish, backwardly-directed, flexible and whitish hairs. *Underside* : epipleuron almost as broad at base as at the middle and continued beyond that point, but vanishing in a vertical direction from a point nearly one-fourth (of the length of elytron) from the apex ; hairs whitish, almost as long as those of the upper surface, sparse on the legs.

Length, 6·5 mm. ; *breadth*, 3 mm.

Distribution. WESTERN HIMALAYAS: Chamba State, Pangi, Pontu Reserve, 25. ix. 1919, defoliating *Ulmus wallichiana* (*R. N. Parker*).

Type in the British Museum; *paratypes* in the Forest Research Institute, Dehra Dun.

Described from four examples.

Genus **BUPHONIDA** Baly.

Buphonida Baly, Trans. Ent. Soc. Lond. (3) ii, 1865, p. 437; Chapuis, Gen. Col. xi, 1875, pp. 220 & 223.

GENOTYPE, *Buphonida evanida* Baly. Fixed by Baly.

Body oblong, slightly constricted behind the humerus or parallel-sided.

Head with the upper surface very strongly convex, the convex portion smooth and impunctate. Some species (not from our regions) included in this genus do not show this characteristic prominently. Seen from above front vertical, steep, with the surface punctate (in the genotype); very wide from side to side, owing to the great width of the head the points of insertion of antennæ seem to be far apart, but they are not inconsistent with definition of a Galerucine beetle given above; all points are relatively far apart, even the eyes look comparatively small, the frontal tubercles are flattened and the clypeus is widely triangular. Labrum much broader than long; mandibles very large. Antenna slender, not very long, extending to the middle of elytron. *Prothorax* about three times broader than long; basal margin as broad as the front margin; upper surface slopes down on each side, the middle area being somewhat flat, sparsely punctate; sides rounded; posterior angles obtuse, anterior acute. In measuring the width no account has been taken of the curvature of the pronotum. *Scutellum* comparatively small, triangular, with the apex rounded. *Elytra* somewhat broader at base than the prothorax; humerus prominent; sutural area just behind the scutellum slightly depressed; an elytral area on each side of this depression convex. Upper surface closely punctate and covered with fairly long yellowish hairs; in the genotype before me on the red area of the elytra the hairs are almost non-existent except in patches here and there, but on the darker marginal portions they are clearly visible. *Underside*: sparsely covered with fine hairs, more thickly on the legs. Legs not very long; claws bifid and in no sense appendiculate, as Baly has suggested in his original description.

Distribution. INDIA. BURMA. BORNEO. PHILIPPINE ISLANDS. AFRICA.

92. **Buphonida evanida** Baly.

Buphonida evanida Baly, Trans. Ent. Soc. Lond. (3) ii, 1865, p. 437.

Body oblong, very slightly constricted behind the humerus, then again slightly widening, apex rounded. Head, antennæ, prothorax, underside and legs pale brown; scutellum blackish with a metallic tint; elytra red though not uniformly so, the colour in places being stronger, while in others, for example on the basal area, much paler shading into the general brownish colour; in certain lights the elytral red has a purplish tint; each lateral margin of elytra and suture metallic bluish-greenish-purple; the purple is the dominating colour, the dark blue seems to be the background, while in certain reflections a greenish hue can be seen. On the suture the colour is broader at base, fading towards the apex and having its lateral boundaries ill-defined. The marginal colour is also broader at base, covering the humerus, where its boundary is ill-defined, but becoming sharper as it runs parallel to the elytral margin; although the difference between the breadth at base and that near the apex is not much it steadily and gradually narrows

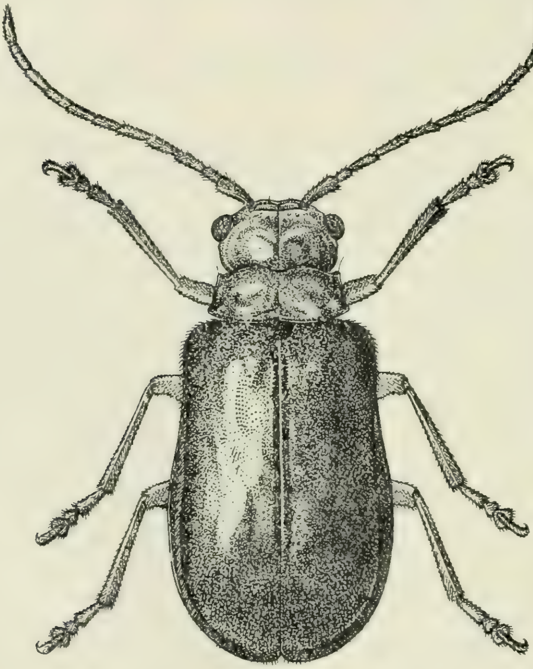

Fig. 74.—*Buphonida evanida* Baly.

and becomes much narrower on the apical margin. Elytra subnitid, rest of the body shining.

Head broad, strongly convex, with a fine median longitudinal dark line, smooth and impunctate on the upper convex surface and with a few punctures on the vertical front ; frontal tubercles transverse, placed in a slightly depressed surface, very broadly triangular, with two sides meeting in the interantennal space and with the third side parallel to the width of the head, surface smooth, impunctate and with a few hairs at each side ; labrum a narrow strip, being much broader than long ; mandibles very large ; a few scattered hairs near the labrum and base of mandibles. Antenna extending a little beyond the middle of elytron ; first segment long and club-shaped ; second somewhat longer than half of third ; fourth longer than third ; fifth very slightly shorter than fourth ; sixth shorter than fifth ; fifth to ninth about equal ; tenth very slightly shorter than ninth ; eleventh bluntly pointed, longer than ninth. *Prothorax* 2·5 mm. broad and 1 mm. long, with front and posterior margins almost straight, the former with a minute emargination in the middle ; upper surface with hairs, smooth, sparsely punctate, there being a mixture of finer and coarser punctures, more closely punctate on the front area than either on the middle or posterior areas ; a shallow depression on the lateral area on each side of the longitudinal middle line ; middle area somewhat flat ; a slight transverse depression at base in the middle. *Scutellum* triangular, with the apex rounded and surface somewhat convex, punctate and sparsely covered with fine hairs. *Elytra* broader at base than prothorax ; closely and strongly punctate, covered with longish, yellowish hairs which are more clearly visible on the dark areas than on the red portion ; from the scutellum the suture is raised for a short distance. *Underside* sparsely covered with fine hairs ; epipleuron narrow, hardly extending to the middle of elytron, then disappearing in a vertical plane.

Length, 8·5 mm. ; *breadth*, 4·5 mm.

Distribution. INDIA.

Type in the British Museum.

93. **Buphonida piceolimbata** Jacoby.

Buphonida piceolimbata Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 960.

Parallel-sided ; testaceous, elytra pale testaceous, with the suture and lateral margins of elytra broadly piceous ; antenna black, with the three basal segments testaceous, scutellum fuscous.

Head very broad, with the vertex convex and impunctate ; frontal tubercles absent ; clypeus broad. Antenna extending beyond the middle of elytron ; third segment twice as long as second ; fourth longer than third. *Prothorax* very short and transverse ; sides rounded ; anterior angles slightly prominent ; upper surface with an obsolete depression at each side and with a few punctures anteriorly. *Elytra* rather closely and strongly punctate. *Underside* : tibia without an apical spine.

Length, 6 mm.

Distribution. Burma : Palon.

Type in the Genoa Museum.

94. **Buphonida pallida** Jacoby.

Buphonida pallida Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 959.

Elongate, rather robust and parallel-sided ; testaceous, antennæ (basal three and proximal part of fourth segments excepted, which are flavous), apex of mandible, tibiæ and tarsi black. In some cases the legs are entirely testaceous or flavous.

Head convex, very broad, impunctate, transversely channelled between the eyes, which are small ; frontal tubercles rather indistinct, palpi slender. Antenna nearly two-thirds the length of the body, widely separated ; third segment shorter than fourth. *Prothorax* very short, nearly four times broader than long ; sides rather rounded ; anterior angles slightly prominent, posterior oblique ; upper surface finely but not very closely punctate, very obsoletely depressed at the sides. *Scutellum* broad. *Elytra* rather convex, hairless, strongly and closely punctate, with some obsolete narrow smooth longitudinal spaces, the interspaces irregularly wrinkled. *Underside* : epipleuron broad anteriorly, very narrow behind the middle. Legs rather robust ; tibia without any apical spine ; posterior femur somewhat thickened ; first segment of posterior tarsus as long as the two following segments together ; claws appendiculate.

Length, 8 mm.

Distribution. Burma : Palon, Karen Mts.

Type in the Genoa Museum.

I have not seen the type of this species. *Buphonida evanida* Baly has the claws bifid and not appendiculate, whatever may have been stated by Baly. Jacoby states that *B. pallida* has the claws appendiculate, and for this reason cannot be put in *Buphonida*, and must come under the section in which the insects have appendiculate claws. It should also be noted that Jacoby's *B. pallida* has the elytra hairless, whereas *B. evanida* has hairy elytra. As I have not seen this species I cannot do other than retain it here, but attention is drawn to this fact under the section in which the insects have appendiculate claws.

Genus **MENIPPUS** Clark.

Menippus Clark, Journ. of Ent. ii, 1864, p. 257; Chapuis, Gen. Col. xi, 1875, pp. 220 & 222; Fairmaire, Ann. Soc. Ent. France (6) viii, (1888), 1889, p. 375.

GENOTYPE, *Menippus cynicus* Clark (Port Denison, Queensland). Fixed by Clark.

Body oblong, fairly broad, moderately convex, sloping down in front from a point on the elytra behind the scutellum, but the incline more gradual behind; upper side closely covered with short silvery hairs, imparting a scaly appearance, on the underside fine straight hairs. Sombre brown generally and not shining.

Head: upper side with a median longitudinal fine channel continued as a ridge in the interantennal space; frontal tubercles flattened; clypeus broadly raised, front part smooth, shining; labrum broader than long, with the front margin broadly emarginate, smooth, shining; front part of clypeus and labrum sparsely covered with long straight hairs; mandibles very large; eyes not very strongly convex. Antenna stoutish, fairly short, not extending much beyond the humerus, tapering very slightly towards the apex; first segment long, club-shaped; second small, almost half of third; fourth somewhat longer than third; fifth, sixth and seventh equal; eighth slightly shorter than seventh; ninth, tenth and eleventh equal, eleventh pointed; this description of the antenna is of the type-species, in others a slight variation may be expected. *Prothorax* broader than long, with the front margin emarginate, enclosing the head, posterior margin slightly sinuate or convex, lateral margins sinuate (in the type-species) or almost straight; anterior lateral angles rounded, but almost rectangular, posterior lateral angles widely rounded; each corner with a seta-bearing pore; upper surface convex, sloping down on each side, punctate in the same manner as the elytra; with depressions. *Scutellum* fairly large, somewhat triangular or approaching the oblong shape, with the apex broad, hairy, but not punctate like the pronotum or elytra. *Elytra* slightly broader at base than the prothorax; humerus convex but not very prominent along each side, without any margin at all. The punctation and pubescence are characteristic: the punctures are fairly large, well-impressed, rather deep and not very closely placed; there are usually irregular spaces between groups of punctures; some punctures are smaller than others; owing to the clothing of hairs the punctures are not easily seen; the hair-clothing is scaly in appearance and comes off easily when gently touched by the tip of a brush, leaving a bare shining patch. *Underside*: epipleuron much broader at base than at the middle, where it is abruptly narrowed, with the surface somewhat concave and covered with scaly hairs as those of upper surface. Legs short, stumpy; each femur with a channel on the underside; each tibia broad, with the upper side somewhat convex along the middle; each tarsus broad, the bilobed segment broadest, claw-segment projecting somewhat beyond the bilobed segment; claws bifid.

Distribution. INDIA. SUMATRA. PHILIPPINE ISLANDS. NEW GUINEA.

95. **Menippus cervinus** (Hope).

Galleruca cervina Hope, in Gray, Zool. Miscell. 1831, p. 29.

Upper side dull dirty brown, underside blackish except the basal three-fourths of the front and middle femur, which shares the general colour of the body.

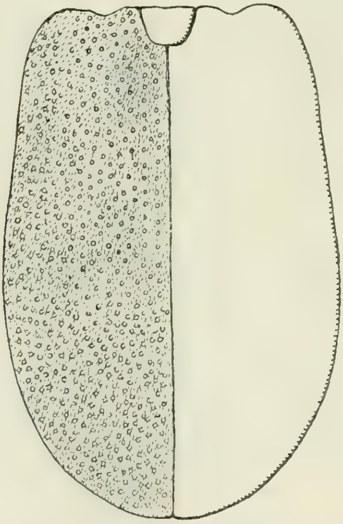

Fig. 75.—*Menippus cervinus* (Hope), showing punctuation of elytra.

Head: owing to the large size of the mandibles the breadth across the front margins of eyes is equal to that of the apex of mouth-parts; upper surface closely punctate in the same manner as the elytra. Antenna with the second segment shorter than third, but not so much as in the type-species, third almost equal to fourth. *Prothorax*: along the middle longitudinal line a small shallow depression in front of the base; nearer the front margin in the same line another slightly deeper; on each side of this line at about the middle a large and shallow depression; each lateral margin somewhat reflexed ; punctures more crowded in the depressions ; the hairs appear to radiate from the depressions. *Scutellum* : apex broad. *Elytra* : slightly depressed behind the scutellum. Along the apical margins the hairs project slightly beyond the margin, forming a fringe.

Length, 9 mm. ; *breadth*, 5 mm.

Distribution. NEPAL : Katmandu. UNITED PROVINCES : Lucknow, 22. i. 1908 (Ind. Mus.) ; Chandan Chowki, 8. v. 1907 (Ind. Mus.). BURMA : Tavoy, Tenasserim (*Doherty*).

Type location unknown to me.

96. **Menippus dimidiaticornis** Jacoby.

Menippus dimidiaticornis Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 218.

Ovate ; pale fuscous ; finely pubescent, intermediate segments of antenna black.

Head finely rugose, with a more or less distinct central ridge ; frontal elevations rather obsolete ; clypeus with a central raised ridge. Antenna extending to half the length of the body ; three basal segments and two or three apical pale flavous or fuscous ; third nearly double the length of the second but shorter than fourth. *Prothorax* more than twice as broad as long ; the sides subangulate near the middle ; posterior angles obsolete ; surface with a shallow broad depression at each side, finely rugose and pubescent. *Scutellum* broad, trigonate, finely pubescent. *Elytra* widened towards the middle, sculptured and pubescent like the pronotum, longitudinally depressed near the lateral margin. *Underside* : epipleuron extending beyond the middle ; first segment of the posterior tarsus as long as the following two segments together ; claws bifid.

Length, 6 mm.

Distribution. BURMA : Bhamo, vi. 1886 (*Fea*).

Type probably in the Genoa Museum.

I have not seen the type. From the above description, which is adapted from Jacoby's original, I am inclined to the belief that it does not properly belong to *Menippus*.

Genus **ATYSA** Baly.

Atysa Baly, Trans. Ent. Soc. Lond. (3) ii, 1864, p. 238 ; Chapuis, Gen. Col. xi, 1875, p. 192 ; Allard, Comptes-Rendus Soc. Ent. Belg. 1889, p. lxxix ; Weise, Tijdschr. Ent. lxv, 1922, p. 67.

GENOTYPE, *Atysa terminalis* Baly (Mysol, New Guinea). Fixed by Baly.

Body oblong, parallel-sided, with a very slight constriction behind the shoulders. Upper side sombre, dark, not shining ; underside shining, sometimes with metallic coloration.

Head exserted, very slightly narrower than the prothorax. Eyes strongly convex, prominent. Antenna slender; long, reaching sometimes almost to the apical one-fourth of elytra; usually tapering towards the apex as in the genotype, but not always so; in some species there is a tendency in the intermediate segments to become flattened; always covered by hairs, the basal segments sparsely, apical more thickly; first segment long, club-shaped, being narrower at base and widening towards apex, shorter than third. *Prothorax* always broader than long, with the anterior and posterior margins almost straight, with slight modifications, sides rounded; upper surface uneven, having elevations and depressions, sloping on each side, hairy, covered with coarse punctures of the same type as those on the elytra (in the genotype they are much larger); each corner with a seta-bearing pore. *Scutellum* triangular, fairly large, punctate, hairy. *Elytra* much broader at base than the pronotum; humerus fairly raised but not strongly so; each lateral margin without the slightest expansion; upper surface closely punctate. The punctures are placed so close to one another that there is no space between them, one rim forming the boundary between two punctures. These rims have a shining upper surface. The whole effect of this configuration is that the hollows of the punctures give to the elytral surface an opaque appearance, while the shining rims as a whole make it subnitid under a lens, although the naked eye cannot detect this. Always covered by hairs, which are sometimes fine and sometimes stiff-looking, in the latter case they are backwardly directed; each hair generally arises from a puncture. *Underside* sparsely covered with fine hairs; epipleuron broader at base, gradually narrowing to the apex (in the genotype its surface is concave, coarsely punctate, with the boundaries strongly raised); legs fairly slender; claws bifid.

Distribution. INDIA. BURMA. SUMATRA. NEW GUINEA.

Key to the Species.

1. Elytra blackish, with brownish margins on each side	*A. marginata* (Hope),	[p. 245.
Elytra brown or black, without brownish margin on each side	2.	
2. Elytra red-brown	3.	
Elytra black, with brownish hairs	*A. mureana* sp. n.,	[p. 247.
Elytra black, without brownish hairs	*A. sudiyana* sp. n.,	[p. 248.
3. Insect large (length, 10 mm., breadth, 5 mm.); elytral punctures much smaller than those on pronotum	*A. gigantica* sp. n.,	[p. 248.
Insect smaller (length, 7 mm., breadth, 3 mm.); elytral punctures of about the same size as those on pronotum	*A. montivaga* sp. n.,	[p. 250.

97. Atysa marginata (Hope).

Auchenia marginata Hope, in Gray, Zool. Miscell. 1831, p. 29.

Head, antennæ, legs black, the latter shining; underside shining black, with a varying suffusion of blue; prothorax partly, scutellum wholly, and elytra partly dull, sombre, blackish; the sloping sides of pronotum, elytral margin on each side including the epipleuron, sometimes the suture also, dull brownish. The proportional variation between the blackish

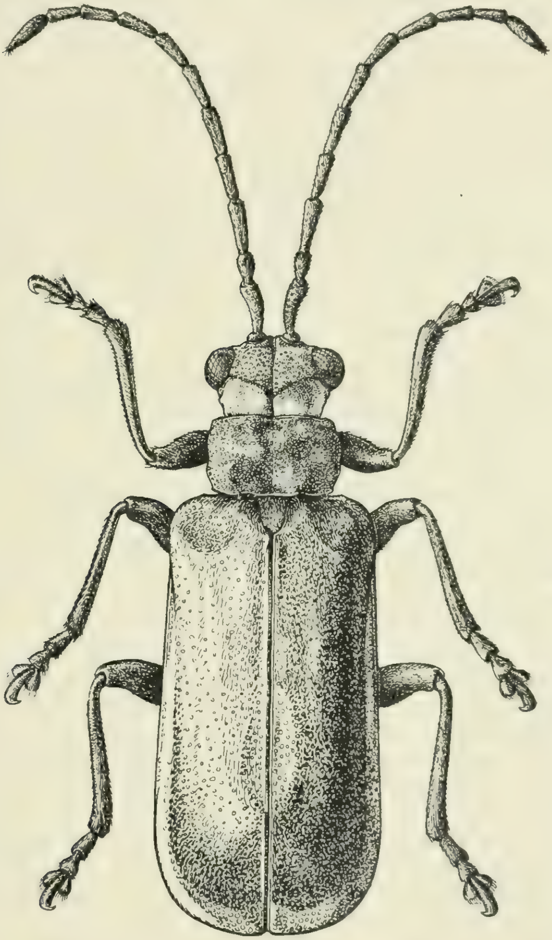

Fig. 76.—*Atysa marginata* (Hope).

and brownish colours of the upper surface is as follows :—The black on the pronotum may spread over the whole surface, leaving the margins brownish, or may be so reduced that the whole pronotum becomes brownish, and the areas covered by the two colours are ill-defined without any sharp boundary lines between. The lateral elytral stripe is fairly broad even in the most melanic examples, and covers the apical area also. The suture may not show the brownish colour at all, but in other examples it is distinctly brownish. In one small example before me from the Burmese Ruby Mines the brownish colour on the elytra predominates to such an extent that the blackish colour is reduced to a broad stripe.

Head with the upper surface coarsely punctate and the collar shining and impunctate ; front tubercles smooth, shining, impunctate, the depression behind them not marked ; clypeus raised, with its front surface abruptly cut away where it is not hairy ; labrum small, broader than long, with the front margin uniformly rounded and surface smooth and impunctate. Antenna reaching to the apical one-third of elytra ; third segment longer than first, more slender than and three times longer than second ; fourth shorter than third ; fourth and fifth about equal ; sixth very slightly shorter than fifth ; sixth and seventh almost equal ; eighth much shorter than seventh ; eighth and ninth about equal ; tenth somewhat shorter than ninth ; eleventh gradually drawn to a point, much longer than both tenth and ninth. *Prothorax* : basal margin sometimes undulating at the sides ; upper surface with six ill-defined depressions : two along the longitudinal median line, one basal and another in front, a large one on each side of the middle line occupying a comparatively large area, and a small one, very variable, near each posterior angle ; punctures similar to those on the elytra. *Scutellum* rather long, with the apex rounded and with the punctures and hairs similar to those of the elytra. *Elytra* : a hair arises from the centre of each puncture, curved, backwardly directed and brownish in colour, so that on the brownish surfaces they are hardly visible, while a blackish one shows them off clearly. *Underside* : epipleuron slightly broadened at base, after that of almost uniform breadth up to the point where the elytron turns round to the sutural angles ; surface slightly concave and covered with hairs like those of elytra.

Length, 7·25 mm. ; *breadth*, 3 mm. A small specimen (Ruby Mines) : *length*, 5 mm. ; *breadth*, 2·5 mm.

Distribution. NEPAL (type-locality). WESTERN HIMALAYAS : Almora, Chaubattia, 6,000–7,000 ft. (*S. R. Archer*) ; Kumaon, vi. 1919 (*H. G. Champion*). ASSAM (*Doherty*). BURMA : Ruby Mines (*Doherty*).

Type in the British Museum.

98. **Atysa mureana** sp. nov.

Head, antennæ, scutellum, elytra and legs black ; pronotum red-brown, sometimes suffused with black and occasionally the black predominating over the red-brown ; mouth-parts and in some aspects bases of antennæ and claws red-brown ; underside metallic blue ; femora in certain aspects with a faint suffusion of the metallic blue ; hairs on the upper side brown, on the underside whitish.

Head : the upper surface covered with large punctures and fine hairs, each puncture having a well-defined centre ; a median longitudinal fine ridge ; frontal tubercles not prominent, smooth, impunctate ; clypeus raised, so that there is an upper and a lower surface, the former punctate and the latter smooth, impunctate ; labrum broader than long, anterior margin widely rounded, smooth and impunctate. Antenna extending to a slight extent beyond the middle of elytron ; first segment slightly longer than third ; second about half of third ; fourth shorter than third ; fourth and fifth equal ; sixth slightly shorter than fifth ; sixth and seventh equal ; eighth shorter than seventh ; eighth, ninth and tenth equal ; eleventh slightly longer than tenth, pointed towards the apex. *Prothorax* quadrate, broader than long, basal margin feebly bisinuate ; upper surface covered with punctures and hairs, with six depressions, two along the longitudinal median line, one basal and another in front, one on each side of the median line, and one very small at each corner in front of the posterior lateral angle. *Scutellum* somewhat elongate, with the apex slightly truncate. *Elytra* broader at base than the prothorax ; closely covered with punctures and brownish hairs which are backwardly directed and separately situated ; sides without a trace of explanate margins. *Underside* : abdominal sternites and legs more thickly covered with hairs than other parts, hairs on tibiæ tending to be brownish. Epipleuron not much broader at base, continued to the apex, surface rugose, concave, thinly hairy, vertical for a short distance towards the vertex. Inner lobe of claw shorter and broader than outer lobe.

Length, 6 mm. ; *breadth*, 3 mm.

Distribution. PUNJAB : Murree, 7,000 ft., vi. 1918 (*Dutt*).

Type in the British Museum ; *paratypes* in the Pusa Collection.

Described from thirteen examples.

In *A. sudiyana* the underside is also metallic blue but the elytral hairs are not brownish, a character which is constant in the thirteen examples of *A. mureana*.

99. **Atysa sudiyana** sp. nov.

Head and antennæ blackish, pronotum red-brown with black patches, scutellum and elytra deep black, underside including elytral epipleura metallic-blue, tibiæ and tarsi blackish; femora in some aspects with a suffusion of the metallic colour; depressions on the pronotum blackish, the red-brown in some parts lighter; sometimes the base black in the middle only and other black areas obsolete.

Head: upper surface coarsely punctate, each puncture large with a distinct well-defined centre from which a short whitish hair arises; these punctures appear to be coarser than those of the pronotum or of the elytra; frontal tubercles flat, shining, smooth and impunctate, no depression behind them, a deeply impressed transverse line from eye to eye: clypeus transversely raised across the middle, the raised part rounded; labrum broader than long, with the front widely rounded and the upper surface convex. Antenna extending to the middle of elytron; first segment thickest, narrower at base than at apex; fourth somewhat shorter than third; fourth and fifth about equal; sixth shorter than fifth; sixth and seventh equal; eighth somewhat shorter and thinner than seventh; eighth, ninth and tenth equal; eleventh gradually tapered to the apex and somewhat longer than tenth. *Prothorax*: upper surface with depressed areas as follows:—Along the median longitudinal line a large basal one, another in front fairly deep, on each side of the median line a fairly large one, the two joined by a transverse depressed line, and at each posterior corner a small one near the angle. *Scutellum* with apex truncate and the surface with shallow obsolete coarse punctures. *Elytra*: hairs curved, backwardly directed; on the upper side in the middle area it is not very easy to see these hairs, they appear like adpressed scales in the cavities of the punctures. *Underside*: sparsely covered with fine hairs; epipleuron for a short distance slightly broader than in the rest of its length, after this basal portion of uniform breadth to one-fourth of its length from the apex, this apical portion being vertical; surface of epipleuron rugose, bearing long hairs.

Length, 6 mm.; *breadth*, 3 mm.

Distribution. ASSAM: Sadiya (*Doherty*).

Type in the British Museum.

Described from two examples.

100. **Atysa gigantica** sp. nov.

Body large, oblong. Rich brown; antenna (except the first, second and basal part of third segments), apical halves (or more) of tibiæ and tarsi blackish; femora in some aspects pitch-brown; hairs everywhere golden-brown; piceous patches on the abdominal sternites and other parts. Pronotum subnitid, elytra opaque, underside shining.

Head: upper surface punctate, covered with hairs, with a median longitudinal impressed line; frontal tubercles moderately raised, with a few punctures; depression behind them fairly large and deep; clypeus raised, with punctures on the upper surface, but the lower surface impunctate; labrum very small, much broader than long and rounded in front. Antenna extending to the apical fourth of elytron: first segment nearly half the length of third; second half of first; third longest, in some aspects flattened towards the apex; fourth much shorter than third, somewhat flattened in a similar way; fifth somewhat shorter than fourth; sixth somewhat shorter than fifth; seventh almost equal to sixth; eighth somewhat thinner and shorter than seventh; ninth almost equal to eighth; tenth very slightly shorter than ninth; eleventh longer than tenth and gradually drawn to a blunt point. *Prothorax*: basal margin gently bisinuate; lateral margin widely rounded, being more so in front of the middle; upper surface completely covered with very large pits which have coalesced with one another in certain places producing larger hollows, each pit has a sharply raised rim which also forms the rim of a neighbouring pit, these pits together give the pronotum a honeycomb appearance; in spite of these pits the general depressions on the pronotal surface can be recognized; in each pit is a small pore which is not always at the centre, and a small scale-like hair arises from the pore, but the hair is so small compared with the large area of the pit that it is not easily seen unless it is particularly looked for under a high magnification. *Scutellum* large, with the apex broadly rounded, and the surface covered with punctures similar to those of elytra and long hairs. *Elytra* very slightly broader at base; closely punctate and covered with long backwardly directed, stiff-looking and separately situated hairs; each side with a slight explanate margin. *Underside*: thickly covered with hairs, hairs on the abdominal sternites longer than those of the upper side. Epipleuron slightly broader at base, and immediately after continued as an inclined plane to the apex, almost maintaining an uniform breadth. In the bifid claws the inner branch though somewhat shorter than the outer is broader, both being sharply pointed; under a lower magnification the claw seems to be bifid at the apex.

Length, 10 mm.; *breadth*, 5 mm.

Distribution. BURMA: Momeik (*Doherty*).

Type in the British Museum.

Described from one example. I am not quite satisfied with its position in this genus.

101. **Atysa montivaga** sp. nov.

Upper side russet-brown ; antennæ, underside, legs black ; base of scutellum pitch-brown ; the median longitudinal line on pronotum blackish, sometimes obsolescent ; points of articulation between the various parts of the legs brownish, sometimes much lighter. Hairs on upper side golden-brown, on the underside whitish.

Head : upper surface flat, closely punctate, covered with hairs, with a median impressed longitudinal line ; frontal tubercles fairly prominent, smooth or shagreened, a transverse impression behind ; clypeus transversely raised, the raised part rounded ; labrum almost as long as broad, with the apex widely rounded and the upper surface smooth, impunctate ; ultimate segments of labial and maxillary palpi thickened but sharply pointed. Antenna almost as long as the body or somewhat shorter ; first segment thickened, club-shaped ; second small, rounded ; third to seventh flattened, more so on the underside, equal in length ; third rounded at base, gradually flattened towards the apex ; fourth and fifth most flattened and broadest ; sixth narrower than fifth ; seventh much narrower and shorter than sixth ; eighth to eleventh much thinner than previous segments ; eighth to tenth equal in length ; ninth distinctly thinner than eighth ; eleventh gradually drawn to a point, longer than ninth. Some hairs on the antennæ are thickened into spiny bristles. *Prothorax* quadrate, somewhat broader than long ; upper surface covered with punctures of the same type as those on the elytra and hairs ; a longitudinal depression along the middle line, very wide at base, somewhat narrower in front ; on each side of the middle line a large depression, the two made continuous by a transverse depression ; at each posterior corner a very small depression. *Scutellum* with the apex somewhat truncate and surface covered with long hairs. *Elytra* much broader at base than the prothorax ; closely covered with punctures and hairs, which are backwardly directed and separately situated. At each side below the humerus is a slight concavity. *Underside* sparsely covered with fine hairs. Epipleuron of uniform width throughout except at the extreme base, where it is broader for a short distance, rugose and covered with hairs. Inner lobe of bifid claw as long as and broader than the outer lobe.

Length, 6·5–7 mm. ; *breadth*, 3 mm.

Distribution. ASSAM : Patkai Mts. (*Doherty*). BURMA : Momeik (*Doherty*).

Type in the British Museum.

Described from eleven examples : seven (Assam), four (Burma).

Genus **ALAFIA** gen. nov.

GENOTYPE, *Galerucella albopilosa* Jacoby.

Body oblong, fairly broad; prothorax much narrower than the base of the elytra; upper side rugosely sculptured, elytra with longish hairs.

Head narrower than the front border of the pronotum; frontal tubercles moderately raised, punctate; clypeus fairly sharply raised; labrum broader than long, with an emargination in front margin, sparsely covered with long stiff hairs. Antenna extending a little beyond the humerus or to the middle of the elytron. *Prothorax* almost quadrate or slightly broader than long; somewhat narrowed towards the base; sides rounded; upper surface with depressions and rugosely punctate. *Scutellum* short, squarish, apex sometimes rounded and sometimes with a slight emargination, surface punctate but not so roughly as the pronotum or the elytra. *Elytra*: surface rough, the punctures in some cases large and in others small with surrounding area raised, producing the rugosity; hairs on the apical area generally somewhat longer. *Underside*: legs fairly long, slender; claw-segment longer than the other segments together; claws bifid.

Distribution. ASSAM. BURMA.

102. **Alafia albopilosa** (Jacoby).

Galerucella albopilosa Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 969.

Body oblong. Brown, with a faint purplish sheen on elytra; underside blackish; femora piceous; points of articulation between femora and tibiæ, tibiæ and tarsi, antennæ and a certain area on the vertex of head black. The whole insect in every part is covered with long whitish erect hairs. The sculpture on the upper side is rough and rugose; this is produced, especially on elytra, by the punctures coalescing and forming larger pits and excavations (this character is more marked on the sides of elytra).

Head: upper side with a median longitudinal ridge, reaching to the depression behind the frontal tubercles; latter prominent, with a median broad excavation; clypeus raised, rounded above; labrum broader than long, somewhat narrowed in front, and with the apical margin emarginate in the middle. Antenna extending to a certain extent beyond the humerus; first segment long and club-shaped, being much wider at apex than at base; second about one-third shorter than first and very slightly so than third; fourth longer than third; fifth very slightly shorter than fourth; sixth very slightly shorter than fifth; sixth, seventh, eighth equal; ninth somewhat thinner than eighth; ninth, tenth equal; eleventh with a sharp-pointed apex, longer than tenth. *Prothorax* slightly broader than long, somewhat narrower at base than at apex; anterior and posterior margins almost straight; lateral margins sinuate, strongly convex in front of the middle; each corner with a seta-bearing pore, posterior ones somewhat forwardly placed; in spite of the general rugosity and hairiness these structures can be distinctly recognized; upper surface punctate, with four depressions, two on the longitudinal middle line, the front one being larger than the basal, and one large on each side. *Scutellum* with the base broader than the apex, which is truncate; surface somewhat convex and finely punctate. *Elytra* much broader at base than the prothorax; basal area on each side of scutellum somewhat convex; lateral surface on each side vertical. *Underside*: the hairs are not so long as those on upper side; epipleuron much narrowed behind the middle and hardly continued to apex.

Length, 7 mm.; *breadth*, 3 mm.

Distribution. BURMA: Karen Mts., 11. iii. 1888 (*Fea*).

Type in the British Museum.

103. **Alafia melancholica** (Jacoby).

Galerucella melancholica Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 213.

Body oblong. Dull, dirty black, with the raised places subnitid. Completely covered with long, erect whitish hairs. In general the sculpture of the upper surface of the whole body, including the head, pronotum and elytra, consists of closely placed rather large punctures that by coalescing have often produced large pits and sometimes larger excavated regions, the hollows being dull and the ridges shining; hence the surface has a subnitid appearance.

Head: interocular region strongly depressed; frontal tubercles flattened, with a longitudinal median cut which widens in front; clypeus not prominent; labrum large, broader than long, with the apex strongly emarginate in the middle. Antenna robust, somewhat thickened towards the apex; extending to a short distance beyond the humerus; first segment large, thickened; second slightly shorter and fourth longer than third; fifth shorter than fourth; sixth shorter but thicker than fifth; segments first to fifth thinner at base than at apex; sixth to tenth thick, about equal and more thickly covered with hairs; eleventh bluntly pointed, not longer than tenth. *Prothorax* about as long as broad, narrowed at base but broadening somewhat towards the head; anterior and posterior margins with slight emarginations in the middle ; sides without distinct lateral margins, continuous with the sloping upper surface ; each corner with a seta-bearing pore, posterior ones somewhat forwardly situated ; upper surface extremely rough, with a larger depression on each side of the longitudinal middle line, and along it two smaller, one at base, the other in front. *Scutellum* broader than long, transversely ovate, surrounded all round by a fine excavation, finely rugosely punctate. *Elytra* much broader at base than the prothorax ; humerus prominent ; surface broadly along the middle somewhat flat, then curving downwards abruptly on each side, so that there is a concavity below the humerus. *Underside* : epipleuron broader at base, then gradually narrowing to the apex, boundaries on each side rather sharp ; legs slender ; claws bifid, inner branch smaller.

Length, 7 mm. ; *breadth*, 3·5 mm.

Distribution. BURMA : Rangoon (*Fea*) ; Pegu.

Type in the British Museum.

104. **Alafia submetallescens** (Baly).

Galeruca submetallescens Baly, Cist. Ent. ii, February 1879, p. 451.

Body oblong, slightly broadened behind. General colour black, upper side subnitid and with a greenish metallic tint, underside more shining. Two apical segments of antenna yellow-brown. Elytra covered with fine hairs.

Head as broad as front margin of prothorax, sparsely covered with fine hairs, with the vertex depressed and the upper surface rugosely punctate ; in the middle sometimes a shallow excavation. Seen from above the areas round the bases of antennæ slightly elevated, while their roots are somewhat sunken. Clypeus strongly raised, the uppermost edge being sharp. Eyes convex. Antenna extending a short distance beyond the middle, covered with fine hairs ; first segment longest, club-shaped ; second very small, shorter than third ; fourth somewhat longer than third ; fifth almost equal to fourth ; sixth, seventh and eighth slightly flattened laterally ; sixth somewhat shorter but thicker than fifth ; seventh much thicker, with the outer end of the apex slightly produced, and with a delimited specialized area on one side ; eighth smaller than seventh ; ninth almost equal to eighth but more cylindrical in form ; tenth smaller than ninth ; eleventh much longer, spindle-shaped, with the apex more pointed. *Prothorax* slightly broader than long but much narrower than the base of the elytra ; seen from above each side slightly produced in front of the middle, and seen laterally this produced part strongly convex, lateral surface sloping down without any distinct margin ; upper surface rugose, coarsely punctate, sparsely covered with fine hairs. At each anterior lateral angle a prominent seta-bearing tubercle, but no such tubercles at the corresponding corners of the posterior margin. *Scutellum* much depressed, triangular, with the apex narrowly rounded and the surface coarsely punctate and with a few scattered fine hairs. *Elytra* coarsely and closely punctate; upper surface generally somewhat flattened, with a postscutellar and postbasal shallow depression; the lateral areas are more or less vertical and the humerus sharply prominent; lateral margins very slightly produced; the clothing of hair denser on the apical area than elsewhere. *Underside* even more sparsely covered with fine hairs than the upper surface; the inner lobe of the bifid claws not very small and not much smaller than the outer lobe.

Length, 8·5 mm.; *breadth*, 4·25 mm.

Distribution. Assam: Sadiya (*Doherty*).

Type in the British Museum.

In the structure of the antennæ and elytra, the relative lengths between the prothorax and the base of the elytra, the possession of longer hairs on the upper side, and in general build this species differs from those of *Galeruca*, and it cannot find a place in that genus.

Genus **SASTRA** Baly.

Sastra Baly, Ann. Mag. Nat. Hist. (3) xvi, 1865, p. 253; Chapuis, Gen. Col. xi, 1875, pp. 198 & 206.

Genotype, *Sastra placida* Baly. Fixed by Baly.

In this genus have been included insects which do not show a great uniformity of structure but which at the same time have a certain resemblance.

Body broad or narrow, sometimes ovate.

Head almost as broad as the prothorax in the genotype but not always so in other species; in most of the species from our regions the head is narrower than the prothorax; always covered with punctures and hairs; frontal tubercles present, depression behind them varying in depth; clypeus with upper side always raised, sometimes transversely and sharply and sometimes evenly roundedly, in front of the raised portion a flat piece level with labrum; latter not large enough to cover the mandibles; maxillary palpus long enough to be seen from the upper side, apical segments generally thickened, sometimes considerably so. Eyes convex. Antenna slender, long, often almost as long as the body, but never shorter than half the length of the body; first segment always long and club-shaped but usually shorter than the third; second always very short, almost less than half of the first and much less than half of third; latter very long and always longer than fourth; the relative lengths of the remaining segments vary within a limited extent according to the species; antennæ always covered with hairs. *Prothorax* always broader than long; upper surface uneven, with depressions, sloping down on each side, more abruptly towards the anterior angles, covered with punctures which are sometimes sparse and comparatively fine but often closely placed and coarse, with hairs which are sometimes so fine that it is only possible to see them under a high magnification; the shape of the prothorax is a common feature among these heterogeneous insects. *Scutellum* triangular, with the surface slightly convex and provided with hairs. *Elytra* broad or comparatively narrow; sometimes somewhat constricted behind the shoulders; with a variable depression behind the scutellum; sometimes a certain basal area on each side of the scutellum convex; humerus always prominent; surface always punctate, often very closely, and covered with hairs; the elytral punctures are always smaller than those of the pronotum, and although they may be less closely placed they are never so sparse as on the pronotum. The hairs are never adpressed to the elytral surface. Elytral margin on each side sometimes slightly explanate; without any ribs or raised places in species here dealt with; apex generally broadly rounded; sides with slight tendency to broadening behind the middle. *Underside* covered with hairs which are generally finer and sparser than those of the upper surface; legs fairly long and slender, tibiæ often with a fine ridge on the upper side; generally the first segment of the posterior tarsus longer than the corresponding segment of either the front or middle tarsus; bilobed segment deeply cleft; claws bifid.

Although the genus is not satisfactory, in the circumstances the arrangement adopted here is the best that could be devised.

Distribution. INDIA. BURMA. SUMATRA. NEW GUINEA.

Key to the Species.

1.	Elytra black with a brown band	*S. rubya* sp. n., p. 256.
	Elytra dirty grey-brown, subnitid	*S. mamaya* sp. n., [p. 257.
	Elytra not so coloured	2.
2.	Elytra brown	3.
	Elytra violaceous-blue or deep blue including lateral margins	8.
	Elytra dark opaque green including lateral margins, but not the extreme margins ..	*S. lateralis* Jac., p. 258.
	Elytra subnitid, metallic green excluding a broad marginal lateral stripe	*S. ceylonensis* Jac., var. [p. 261.
3.	Elytral pubescence reddish	*S. birmanica* Jac., [p. 259.
	Elytral pubescence golden-yellow	*S. parvula* Jac., p. 259.
	Elytral pubescence greyish	4.

4. Five black patches on pronotum; scutellum, a little basal portion of suture and two marginal stripes on each side of elytra black	*S. marginata* Jac., [p. 260.
No such markings	5.
5. Elytral margin on each side and suture with metallic green stripe	*S. ceylonensis* Jac., [p. 261.
No such markings	6.
6. Antennæ (except the basal segment) and tibiæ black	*S. tibialis* Jac., p. 262.
Antennæ and tibiæ not so coloured	7.
7. Insect large, length, 11·25–12·5 mm.	*S. indicus* Jac., p. 264.
Insect small, length, 5·5 mm.	*S. dohertyi* sp. n., p. 265.
8. Elytra deep blue	*S. hirtipennis* Jac., [p. 266.
Elytra violaceous-blue	9.
9. Legs brown or piceous	*S. purpurascens* Hope, [p. 267.
Legs obscure violaceous	*S. fulvicornis* Jac., [p. 268.

105. **Sastra rubya** sp. nov.

Oblong, with the apex rounded. Head, antennæ, prothorax, legs generally and a fairly broad median band on elytra brown; the brown of legs with a good admixture of blackish, of elytral band somewhat lighter, of mouth-parts darker, and of antennæ especially of the apical segments tending to be darker; scutellum, basal and apical portions of elytra black; underside: metasternum with associated lateral structures and abdomen shining black; the black and brown of elytra extending to epipleura.

Head: the upper surface almost flat, with a few scattered punctures and with a fine median longitudinal impressed line which continues through to the apical margin of clypeus; frontal tubercles not raised; clypeus rather concave, impunctate, a fine median line dividing it in front into two slight lobes; labrum broader than long, with the apex continuously rounded from side to side, surface somewhat convex, with four or five fine erect hairs. Antenna fine, long, reaching almost to apex of elytron; first segment very long, club-shaped; second very short; third almost as long as first, three times as long as second; fourth shorter than third; fifth slightly shorter than fourth; fifth to eighth equal; ninth shorter than eighth; ninth, tenth equal; eleventh gradually pointed, slightly longer than tenth. *Prothorax* broader than long; anterior and posterior margins almost straight; sides very slightly rounded, sloping in front; each corner with a minute seta-bearing pore. Upper surface shining, with hairs, scatteredly punctate, each puncture surrounded by a dark brown ring; generally uneven with a deep, broad, median longitudinal channel from base to the front margin, wider near the base; on each side a shallow depression; in front of each posterior corner a shallow small depression. *Scutellum* triangular with the apex rounded, surface convex and hairy. *Elytra* broader at base than the prothorax; closely covered with small punctures and backwardly directed hairs which stand apart from one another. *Underside* sparsely covered with fine hairs; epipleuron broader at base, concave, narrowing and assuming a flat surface behind the middle, and continuing nearly to apex.

Length, 5 mm.; *breadth*, 2·5 mm.

Distribution. Burma: Ruby Mines (*Doherty*).

Type in the British Museum.

Described from one example.

106. **Sastra mamaya** sp. nov.

Oblong. Dirty grey-brown, mouth-parts blackish, undersides of antennal segments, inner and undersides of femora and tibiæ with black streaks. Pronotum and underside shining, elytra subnitid.

Head: upper surface strongly and coarsely punctate, covered with hairs; frontal tubercles well-developed, with a deep cleft between them; clypeus raised; labrum broader than long, with the apical margin feebly emarginate and with a few very fine hairs; mandibles large. Antenna almost as long as the whole insect; first segment club-shaped but shorter than third; second small, almost globular; third very long; fourth shorter than third; fifth slightly shorter than fourth; fifth, sixth and seventh about equal; eighth shorter than seventh; ninth, tenth and eleventh thinner; ninth and tenth each almost equal in length to eighth; eleventh gradually pointed, slightly longer than tenth. *Prothorax* broader than long; anterior and posterior margins almost straight, latter sometimes slightly bisinuate on each side of the middle; sides obliquely straight, somewhat convex in front of the middle; each of the four corners with a seta-bearing pore, the front ones larger; upper surface not very closely covered with punctures, even under a high magnification only one or two punctures have been seen to possess a hair; along the median longitudinal line a depression at base, the front one almost obsolete; on each side a very deep and large excavation. *Scutellum* triangular with the apex broadly rounded and surface covered with long hairs. *Elytra* broader at base than the prothorax, surface somewhat convex, closely covered with punctures and backwardly directed erect hairs. *Underside* covered with hairs as long as those of upper side. Last visible sternite of male with a deep emargination in the middle.

Length, 7 mm.; *breadth*, 3·5 mm.

Distribution. Burma : Maymyo, vi. 1924, on *Phyllanthus* sp. (*C. R. Robbins*).

Type in the British Museum.

Described from six examples.

In this genus *unicolor* Jac. (1884), *tibialis* Jac. (1900), *crassipalpis* Jac. (1899) and the present species are all of the same type of structure and coloration, though they differ in details, such as, for example, the colour of the tibiæ in *tibialis*, which is constant in the many specimens before me, and this feature can be correlated with a constancy in size. From such considerations I have described this species, although I feel that all those mentioned above may ultimately prove to be varieties of one species. They have a wide range, occurring in Assam, Burma, Sumatra, Borneo.

107. **Sastra lateralis** (Jacoby).

Galerucella lateralis Jac., Proc. Zool. Soc. Lond. 1887, p. 106.

Body oblong-ovate. General colour dark brown, with the following colour-scheme :—Basal segments of antenna suffused with piceous, four or five apical entirely so ; an ill-defined patch on the vertex of head, three patches on pronotum, and scutellum black ; elytra almost opaque, obscure green, with the extreme lateral margins narrowly dark brown ; upper sides of femora and tibiæ fuscous.

Head with the upper surface flat but not so pronouncedly as in *ceylonensis*, closely covered with punctures which are not so coarse as those of *ceylonensis*, and impressed with a fine longitudinal median line which continues through the frontal tubercles and between the antennæ to the clypeus, this feature being absent in *ceylonensis* ; each puncture with a fine whitish hair which can be seen in a suitable light under a high magnification ; frontal tubercles not very prominent ; depression behind the tubercles not so deep as in *ceylonensis* ; clypeus strongly elevated, somewhat curved at each side ; labrum broader than long, with the apex rounded ; in the structure of the clypeus and labrum this species differs from *ceylonensis*. Antenna almost as long as the elytron ; third segment much longer than fourth ; fifth very slightly shorter than fourth ; fifth, sixth, seventh nearly equal to one another ; eighth shorter than seventh ; eighth and ninth equal ; tenth somewhat shorter than ninth ; tenth and eleventh almost equal, the latter tending to be pointed. *Prothorax* slightly more than twice as broad as long ; anterior margin almost straight ; posterior margin feebly bisinuate ; lateral margins rounded, each corner with a seta-bearing pore ; upper surface transversely depressed, with a fine longitudinal median impressed line and closely covered with punctures, each puncture having a fine whitish hair. Compared with those of *ceylonensis* the pronotal punctures of this species are smaller. *Scutellum* triangular, with the surface somewhat convex, finely punctate and covered with fine hairs. *Elytra* broader at base than the prothorax; upper surface convex, with the apex rounded, completely and closely covered with fine whitish hairs. *Underside* more shining than the upper surface; sparsely covered with fine whitish hairs; epipleuron broad at base, with the surface convex to about two-thirds of its length and continued somewhat narrowly and concavely to the apex.

Length, 6 mm.; *breadth*, 3 mm.

Distribution. CEYLON: Kandy, vi. 1908 (*G. E. Bryant*).

Type in the British Museum.

108. **Sastra birmanica** (Jacoby).

Sastroides birmanica Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 217.

General colour fulvous; antennæ (except the two basal segments and base of the third), the apices of tibiæ and tarsi fuscous or black. Elytral pubescence reddish.

Head with a rather broad depression above the eyes, the vertex finely rugose; the frontal elevations transversely subquadrate. Clypeus triangular, rather swollen, strongly punctate. Antenna two-thirds the length of the body; the intermediate segments slightly widened, third much longer than the two preceding segments together, fourth about a third shorter. *Prothorax* more than twice as broad as long; the sides straight at the base, rounded before the middle and narrowed in front; the anterior angles pointed, the upper surface strongly rugose, with a short obsolescent anterior depression and a broader posterior one situated in the middle line. *Scutellum* pubescent, broad, with the apex obtusely rounded. *Elytra* finely coriaceous and punctate. *Underside* sparingly pubescent.

Length, 12·5 mm.

Distribution. BURMA: Bhamo, vi. 1886; Teinzo, v. 1886 (Fea Coll.).

Type in the Genoa Museum.

Jacoby remarks that "one of the specimens is of fuscous, the other of pale reddish colour."

I have not seen the type of this species. The above description is adapted from Jacoby's original account.

109. **Sastra parvula** (Jacoby).

Sastroides parvula Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 959.

General colour fulvous; six terminal segments of antenna, the underside of tibiæ and the tarsi fuscous; the pubescence on the prothorax and elytra golden-yellow.

Head finely rugose-punctate, with a longitudinal central impressed line ; eyes round and large ; the frontal elevated portions not strongly raised ; clypeus narrowly transverse ; the penultimate segment of palpi thickened. Antenna rather short, not extending to the middle of the elytron, clothed with pubescence ; second segment short, third elongate, very slightly longer than fourth. *Prothorax* nearly three times as broad as long, the sides slightly rounded and widened at the middle, narrowed in front, the angles obsolete. The upper surface transversely depressed at the middle near the base and to a smaller extent at the sides ; sculptured like the head but the punctation obscured by the rather long yellowish pubescence. *Scutellum* longer than broad, large. *Elytra* slightly widened at the middle, punctate like the prothorax. *Underside* : epipleuron disappearing before the middle ; tibiæ simple, unarmed.

Length, 6·25 mm.

Distribution. BURMA : Karen Mts. (Fea Coll.).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is adapted from Jacoby's original in English.

110. **Sastra marginata** (Jacoby).

Galerucella marginata Jac., Proc. Zool. Soc. Lond. 1887, p. 107.

Body oblong. General colour dirty brown, head and prothorax shining, elytra subnitid, the following parts are black :—Antennæ (except extreme bases and apices of first four segments) ; portions of maxillary segments and mandibles ; a longitudinal median stripe (broadened at base) on upper surface of head ; five spots on pronotum arranged in a transverse line (two on each side and one median, of the lateral spots that near the edge is larger than the other which is almost round ; the median patch covers longitudinally a considerable area in the middle, it seems as if it has been formed by the fusion of two round spots); scutellum and a small area on each side ; suture narrowly to a short distance from base ; on each elytron a stripe from humerus to the point where the elytron bends towards the suture, and extreme lateral edge from base to apex ; and upper surface of all segments of legs.

Head with the upper surface covered with small punctures, each puncture containing a fine short whitish hair ; frontal tubercles not prominent ; depression behind them very slight ; clypeus transversely raised ; labrum small, broader than long, with a minute emargination in the middle. Antenna somewhat shorter than the body ; third segment much longer than fourth ; fifth very slightly shorter than fourth ; fifth and sixth almost equal; seventh slightly shorter than sixth; eighth somewhat more slender than and almost equal in length to seventh; eighth, ninth and tenth equal; eleventh pointed, slightly longer than tenth. *Prothorax* less than twice as broad as long; front margin almost straight, with a minute emargination in the middle; basal margin feebly bisinuate; each lateral margin strongly convex in the middle; each corner with a seta-bearing pore; upper surface uneven, having depressions as follows:—One shallow, transverse along the basal margin, one in front in the middle, and one on each side having the round black spot in its middle; covered with coarse punctures, each having a fine whitish hair. *Scutellum* triangular, with the surface somewhat convex and covered with fine hairs. *Elytra* broader at base than the prothorax; upper surface closely and completely covered with punctures and with backwardly directed hairs which stand out separately from one another; extreme lateral margin somewhat convex, this convex surface shining and not covered with hairs along the middle. *Underside* covered with greyish hairs; epipleuron broad at base, with concave surface and narrowly continued to the apex.

Length, 7 mm.; *breadth*, 4 mm.

Distribution. CEYLON: Bogawantalawa, 4,900–5,200 ft., 21. iii.–4. iv. 1882 (*G. Lewis*).

Type in the British Museum.

111. **Sastra ceylonensis** (Jacoby).

Galerucella ceylonensis Jac., Proc. Zool. Soc. Lond. 1887, p. 105, pl. xi, fig. 12.

Body oblong. General colour dark brown with the following colour-scheme:—Antenna reddish-brown with five or six apical segments blackish; on head a broad median longitudinal patch with the base wider than the apex, black; on pronotum one median and two lateral patches one on each side, the median being narrower than lateral, black; on elytra a large patch covering the base and humerus and continuing as a lateral stripe which bends inwards towards the suture without meeting it on the apical surface, bright green; the basal patch is not always confluent with the humeral; a sutural stripe beginning narrowly then broadening and again slightly narrowing, extending to about four-fifths of the length of suture, bright green; area enclosed between the green stripes brick-red or dirty brown; lateral margins dark brown, sometimes piceous; upper sides of femora and tibiæ black. There are two examples in the collection of the British Museum in which the upper surface of elytra except the margins all round is metallic green; the apical portions of antennal segments, at least of the basal ones, the points of articulation between the various segments of the legs, and limited portions of the upper surface of femora and tibiæ black or piceous. This variety has been confused with *lateralis*, but there are many structural and colour-differences which have been indicated in the description of *lateralis*.

Head with a large area on upper surface slantingly cut away, this area being closely covered with coarse punctures, each puncture containing a hair ; collar smooth, impunctate ; interocular area deeply indented ; frontal tubercles mesially flattened ; clypeus strongly raised ; labrum almost as broad as long, broader at base than apex which is rounded. Antenna somewhat shorter than the body ; third segment much longer than fourth ; fifth almost equal to fourth ; sixth very slightly shorter than or equal to fifth ; seventh, eighth, ninth almost equal to one another ; tenth slightly shorter than ninth ; eleventh pointed and somewhat longer than tenth. *Prothorax* twice as broad as long ; anterior margin slightly emarginate in the middle, posterior margin bisinuate, lateral margin strongly convex in front of the middle ; each of the four corners with a seta-bearing pore ; upper surface deeply depressed across the middle, closely covered with coarse punctures, with a finely impressed line along the middle, and with the anterior sides sloping down. Seen under a high magnification each puncture is a shallow, roundish pit with a centre and associated with a fine hair which does not always arise from the centre. *Scutellum* triangular with the apex rounded and surface convex and covered with fine hairs. *Elytra* broader at base than the prothorax ; apex rounded ; the green basal area somewhat convex ; depression behind the scutellum very shallow ; surface subnitid, closely covered with fine punctures and stiff, backwardly directed, greyish hairs which stand out separately from one another. *Underside* thinly covered with fine grey hairs, tibiæ more thickly covered. First segment of posterior tarsus longer than the corresponding segment of other tarsi. *In the male* the first segment of the front tarsus is very short, almost globular.

Length, about 7 mm. ; *breadth*, about 3·5 mm.

Distribution. CEYLON : Kandy, vi. 1908 (*G. E. Bryant*) ; vii., viii. 1906 (Brit. Mus.).

Type in the British Museum.

112. **Sastra tibialis** (Jacoby).

Sastroides tibialis Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 131.

Body broad, general colour brown, antennæ (except the basal segments which share the body-colour), tibiæ and tarsi black.

Head with the upper surface closely covered with coarse punctures, each puncture containing a hair [this character is visible under a high magnification], with a longitudinal impressed median line, and shallowly depressed in front; frontal tubercles prominent; clypeus strongly elevated; maxillary palpus with the apical segment greatly swollen. Antenna extending beyond the middle of elytron; third segment much longer than fourth; fifth very slightly shorter than fourth; sixth

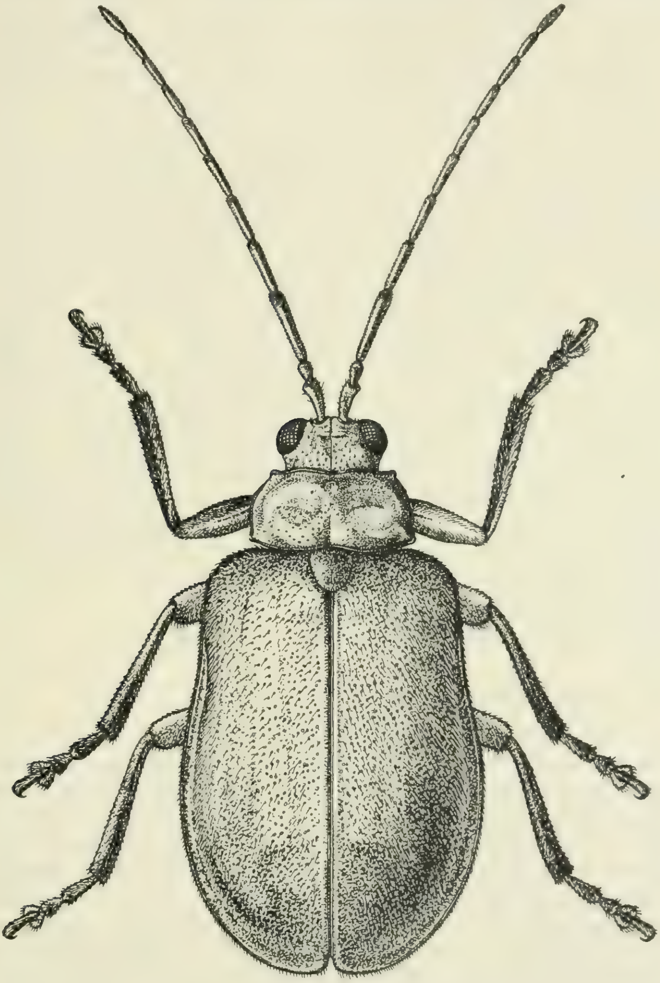

Fig. 77.—*Sastra tibialis* (Jac.).

very slightly shorter than fifth; sixth, seventh, eighth nearly equal to one another; ninth shorter than eighth; tenth very slightly shorter than ninth; eleventh pointed, nearly equal to or very slightly longer than tenth. Eyes strongly convex. *Prothorax* about twice as broad as long; anterior margin almost straight, posterior margin faintly bisinuate, the seta-bearing corners placed somewhat forward, those at the anterior corners more prominent than those of posterior corners, lateral margin strongly convex behind the front angles; upper surface uneven, sloping down on each side, shining, with scattered large punctures and without hairs, along the middle longitudinal line a depression in front smaller and shallower than the posterior one, on each side of this line a large depressed area and behind each posterior seta-bearing pore a small depression. *Scutellum* triangular with the apex rounded and the surface convex, and covered with hairs. *Elytra* broader at base than the prothorax; convex, with the apex rounded, closely punctate, subnitid, and covered with stiff brownish hairs which stand separately from one another and with a backward inclination; depression behind the scutellum shallow. *Underside* shining, covered with finer hairs, and less hairy than the upper surface; epipleuron broad at base, concave and continued to apex; legs covered with long, stiff and brownish hairs; first segment of posterior tarsus as long as the two following segments together.

Length, 9–11 mm.; *breadth*, 4·5–6 mm.

Distribution. ASSAM: Sylhet; Patkai Mts. (*Doherty*). MALAY PENINSULA: Perak.

Type in the British Museum.

113. **Sastra indicus** (Jacoby).

Sastroides indicus Jac., Novitates Zoologicæ, i, 1894, p. 315.

Body broadly robust. General colour obscure pale fuscous; antennæ obscure fulvous except the apical segments; elytral pubescence thin and greyish; legs obscure fulvous.

Head strongly and closely punctate. Palpi moderately robust. Antenna extending beyond the middle of the elytron; third segment one-half longer than the fourth; the apical segments shorter. *Prothorax* twice as broad as long, the sides rounded in the middle, the surface with a lateral and a basal depression, shining, rather strongly but not very closely punctate. *Scutellum* broad, with the apex truncate. *Elytra* much broader than the prothorax, convex, with a slight depression near the base, the sides rather broadly margined, the punctation rather finer and more closely placed than that of the prothorax. *Underside*: epipleuron broad, continued behind the middle.

Length, 11·25–12·5 mm.

Distribution. ASSAM : North Manipur.

Type location unknown to me.

" Closely allied to *S. unicolor* Jac., but with shorter antennæ and longer third joint of the latter, the epipleuræ of the elytra broader, and extending nearly to the apex, and the general size of the insect larger."

I have not seen the type of this species. The above description is adapted from Jacoby's original in English.

114. **Sastra dohertyi** sp. nov.

Body small, oblong, entirely brown, five or six apical segments of antenna fuscous.

Head with the mouth-parts exserted and with a few punctures on upper surface ; frontal tubercles broad, somewhat flattened, depression behind them deep ; with a median longitudinal line which continues between the antennæ to a certain extent on the clypeus ; clypeus not elevated at all, rather concave ; labrum broader than long, with the front border widely rounded. Antenna slightly shorter than the body ; third segment longer than fourth but only to a little extent ; fifth shorter than fourth ; fifth, sixth, seventh equal ; eighth shorter than seventh ; eighth, ninth, tenth equal ; eleventh slightly longer than tenth and sharply pointed. In some examples the third segment is relatively not so markedly longer than fourth, and the relative lengths of fifth, sixth and seventh tend to vary, the latter segments being very slightly shorter. *Prothorax* slightly broader than long ; front margin with a very slight convexity in the middle ; basal margin almost straight or feebly bisinuate ; feebly convex in the middle ; each corner with a minute seta-bearing pore ; upper surface with a fine longitudinal line in the middle, a small depression at base in the middle and corresponding to it another small depression near the front margin ; on each side beginning at the posterior angle is a pronounced depression which bends round to the longitudinal middle line, thus a depressed arch occupies the basal portion of the pronotal surface ; very sparsely scattered over with minute punctures and without hairs ; more shining than the elytra. *Scutellum* in a rather shallow depression, triangular, with apex acutely rounded and surface covered with fine hairs. *Elytra* broader at base than the prothorax ; depression behind scutellum very slight ; area on each side of depression somewhat convex ; surface subnitid, closely covered with punctures and backwardly directed fine hairs which stand out separately from each other ; lateral margins slightly explanate. *Underside* covered with fine hairs, more densely on the legs ; epipleuron slightly varying in width, narrowing and becoming vertical towards the apex ; claws bifid at apex, with the inner branch broader.

Length, 5·5 mm. ; *breadth*, 3 mm.

Distribution. BURMA : Tenasserim, Tavoy (*Doherty*).

Type in the British Museum.

Described from seven examples, 4 ♂♂, 3 ♀♀.

115. **Sastra hirtipennis** Jacoby.

Sastra hirtipennis Jac., Entomologist, xxiv, 1891, Suppl. p. 33.

Body oblong, somewhat constricted behind the shoulders. Elytra deep blue ; head, antenna (except four apical segments, which are blackish), underside brown ; tarsi, apices of tibiæ and some ill-defined places on femora blackish. Upper surface fairly shining, underside more so.

Head with the upper side closely covered with punctures, each puncture containing a whitish hair, with a deep longitudinal median impression which is continued between the antennæ ; frontal tubercles fairly prominent ; depression behind them very deep ; clypeus with the surface roundly convex and not sharply raised ; labrum broader than long, with the apex uniformly rounded. Antenna as long as the body ; third segment much longer than fourth ; fifth shorter than fourth ; sixth shorter than fifth ; sixth and seventh almost equal ; eighth, ninth, tenth nearly equal ; eleventh somewhat longer than tenth and pointed. *Prothorax* twice as broad as long ; front margin widely concave ; posterior margin straight ; lateral margins bisinuate ; each corner with a seta-bearing pore ; upper surface uneven, with depressions as follows :—Along the longitudinal median line two smaller ones, one near the basal margin and the other near the front margin, and on each side of the median line a larger and deeper one ; covered with fairly large, round punctures, each puncture having a stiff backwardly directed hair. *Scutellum* triangular, with apex rounded, surface somewhat convex and covered with hairs. *Elytra* broader at base than the prothorax ; depression behind the scutellum pronounced ; on each side of it a certain basal area convex ; behind the convex area a depression ; completely covered with fine punctures and backwardly directed stiff hairs which stand out separately from one another. *Underside* sparsely covered with fairly long hairs, sparser on abdominal sternites and thicker on legs ; epipleuron broader and concave at base, then narrowed and becoming vertical continued to the apex.

Length, 9 mm. ; *breadth*, 5 mm.

Distribution. ASSAM : Patkai Mts. (*Doherty*).

Type in the British Museum.

116. Sastra purpurascens (Hope).

Galleruca purpurascens Hope, in Gray, Zool. Miscell. 1831, p. 29.
Haplosonyx sublævicollis Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 218.

Body oblong, broad, fairly shining. Elytra deep blue, sometimes with a purplish sheen ; head, six or seven basal segments of antenna, scutellum, prothorax, underside, femora light brown, red in some examples ; five or four apical segments of antenna, tarsi, apices of tibiæ piceous or fuscous ; in some examples the entire tibiæ tend to be piceous or fuscous ; in those examples in which the yellow parts tend to become red the variation is not uniform, the abdominal segments being more yellow than red.

Head with the upper surface somewhat flattened, this flattened portion covered with coarse punctures, each puncture containing a whitish hair ; frontal tubercles not very prominent ; depression behind them fairly deep ; clypeus somewhat raised ; labrum slightly broader than long, with the apex rounded. Antenna almost as long as the body ; third segment much longer than fourth ; fifth very slightly shorter than fourth ; sixth somewhat shorter than fifth ; sixth and seventh almost equal ; eighth somewhat shorter than seventh ; eighth to eleventh about equal and appear slightly thinner than previous segments ; eleventh pointed at apex. *Prothorax* slightly less than twice as broad as long ; anterior margin almost straight ; posterior margin bisinuate, sinuation near the basal corners pronounced ; lateral margin convex near the middle ; each corner with a seta-bearing pore, the posterior ones somewhat larger than those in front ; upper surface uneven, with very shallow depressions : one in the middle at base, another, shallower, near the front margin in the middle, and one larger on each side of the longitudinal middle line ; sparsely and irregularly punctate ; thinly covered with very fine whitish hairs (if not especially looked for in a suitable light this character is liable to be missed). *Scutellum* triangular, with the apex rounded and surface covered with fine whitish hairs. *Elytra* broader than the prothorax ; somewhat constricted behind humerus ; lateral margin somewhat explanate ; depression behind the scutellum prominent ; a certain area on each side of depression convex ; a stronger depression behind the convex area ; humerus prominent ; between humerus and basal convex area another depression ; upper surface punctate and covered with very fine whitish hairs, punctures fine and not very close together. *Underside* fairly thickly covered with fine hairs ; epipleuron almost of equal breadth throughout its length, only slightly narrowing at the apex where it becomes vertical.

Secondary sexual character. In ♂ (1) the last visible abdominal sternite emarginate, (2) the first segment of the front tarsus broader than the corresponding segment of other tarsi, although in both sexes the first segment of the posterior tarsus is always longer than the corresponding segment of other tarsi.

Length, 10–11 mm. ; *breadth*, 5·5–6 mm.

Distribution. NEPAL (type-locality). BURMA : Karen Mts., v., xii. 1888 (*L. Fea*), 3,000 ft., 18–21. v. 1916 (*F. M. Mackwood*), locality from which Jacoby described *sublævicollis*.

Sublævicollis cannot be put in *Haplosonyx* because Jacoby's species has split claws.

Types of both in the British Museum.

117. **Sastra fulvicornis** Jacoby.

Sastra fulvicornis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 958.

Colour of upper side violaceous-blue and underside piceous ; antennæ fulvous ; legs obscure violaceous.

Head finely rugose at the vertex ; the elevated portions in front distinctly raised, the lower portion more shining. Antenna about two-thirds the length of the body, slender ; the third segment very elongate and the longest. *Prothorax* at least twice as broad as long, the sides strongly angulate in the middle, the anterior and posterior margins nearly straight ; the upper surface finely rugose throughout, deeply impressed at the sides and less so longitudinally in the middle. *Scutellum* broad, finely punctate. *Elytra* wider at the base than the prothorax, slightly widened towards the middle, with a narrow margin, dark violaceous-blue, finely and closely punctate, and sparingly covered with grey pubescence. *Underside* : tibiæ sulcate and unarmed.

Length, 7·5 mm.

Distribution. BURMA : Karen Mts. (Fea Coll.).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original account.

Genus **GALEROTELLA** gen. nov.

GENOTYPE, *Galerucella virida* Jac.

Body oblong, fairly broad, parallel-sided ; punctures on the pronotum of the same type as those on the elytra.

Head : upper side slightly convex or flattish, a median longitudinal line, front generally vertical ; frontal elevations present but feeble, sometimes the line of demarcation between them and the area behind strongly delimited, in the genotype it is not so ; clypeus raised, its posterior surface somewhat concave and punctate, and the anterior surface smooth and impunctate ; labrum broader than long, with an apical emargination. Antenna generally short and never as long as the body ; first segment long and club-shaped ; second always shorter than either the first or the third. *Prothorax* broader than long ; upper surface sloping on each side in front, depression shallow or almost absent ; each corner with a seta-bearing pore. *Scutellum* triangular, with the apex rounded or straight. *Elytra* as broad or almost as broad at base as the prothorax ; humerus not very prominent ; surface uniformly, confusedly and closely punctate and covered with longish hairs ; lateral margins sometimes slightly explanate. *Underside* : fairly densely covered with hairs ; epipleuron broader at base and gradually narrowing towards the apex but without reaching it, surface more or less concave and punctate ; legs stoutish, not long and slender ; each tibia with a fine ridge on its upper surface ; bilobed segment of tarsus well formed ; claw-segment long ; claws bifid.

Distribution. INDIA. BURMA.

Key to the Species.

1.	Insect with upper side apple-green........	*G. virida* (Jac.), p. 269.
	Insect with upper side not apple-green	2.
2.	Antenna slightly shorter than the body, not thickened towards the apex	*G. garoana* sp. n., [p. 271.
	Antenna hardly extending beyond the humerus, thickened towards the apex....	*G. euryobotryæ* sp. n., [p. 272.

118. **Galerotella virida** (Jacoby).

Galerucella virida Jac., Proc. Zool. Soc. Lond. 1887, p. 105.
Galerucella simplicicollis Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 123.

Body oblong. Upper side dull, lower more shining. Upper surface of head, pronotum and elytra apple-green ; lateral surface of head round the eyes, of pronotum narrowly and lateral and apical margins of elytra always dirty brown ; in some apple-green examples there is evidence that the colour tends to be discharged. A fine longitudinal line (sometimes broadening at base) on head blackish, upper side of all segments of antenna piceous ; a patch on each side of pronotum near the anterior angles, and scutellum black ; sometimes ill-defined stripes on upper side of posterior femur blackish. Underside generally dirty pale brown ; points of articulation between femora and tibiæ, underside of tibiæ to a certain length from the base, apices of mandibles black. In the type-example of *virida* the scutellum is not black, although tending to be so, the melanic parts are stronger and more extensive, and the tarsi darker brown with touches of black at the apices.

Head as broad as the front margin of prothorax; upper surface sloping in front, closely covered with punctures and fine whitish hairs; frontal tubercles not prominent; clypeus triangularly raised, punctate, hairy; labrum broader than long, with apical margin emarginate in the middle and having a few long whitish hairs; mandibles very large. Antenna slightly shorter than half the body, somewhat longer in male; first segment long and club-shaped; second half of first in length; third shorter than first; fourth somewhat longer than third; fifth somewhat shorter than fourth; fifth, sixth, seventh about equal; eighth somewhat shorter than seventh; eighth, ninth equal; tenth shorter than ninth; eleventh with the pointed part of apex longer than tenth. *Prothorax* twice as broad as long, very slightly narrowing in front;

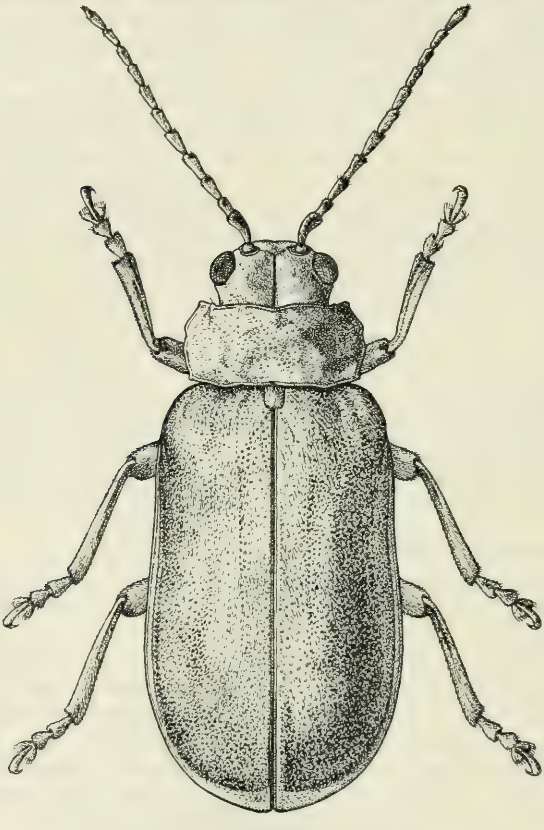

Fig. 78.—*Galerotella virida* (Jac.).

anterior and posterior margins almost straight ; sides rounded ; each corner with a seta-bearing pore ; upper surface uneven, sloping down on each side, without any well-marked depressions although a shallow one on each side and at base and front on the middle longitudinal line can be recognized ; closely covered with punctures and fine whitish hairs. *Scutellum* : base broader than apex, with the sides consequently oblique, finely punctate and covered with hairs. *Elytra* broader at base than the prothorax ; closely and completely covered with punctures of the same kind as those on pronotum and fine whitish hairs ; lateral margin very slightly explanate, with its surface slightly convex. *Underside* covered as thickly as upper side with fine whitish hairs ; epipleuron gradually narrowing from base but continued to apex.

Secondary sexual character. In both sexes the last visible sternite has an emargination in the middle, that in the male being deeper.

Length, 8 mm. ; *breadth*, 4·5 mm.

Distribution. BENGAL : Mandar (*P. Cardon*). SOUTH INDIA : Nilgiri Hills, 3. x. 1917 (*Y. R. Rao*) ; Anamalais. Coorg : Sidapur, iii. 1917 ; Shevaroys-Yercaud, 4,500 ft., 21. iv.–4. v. 1916, on coffee. CEYLON : Bogawantalawa, 4,900–5,200 ft., 21. iii.–4. iv. 1882 (*G. Lewis*).

Types of *virida* (Ceylon) and *simplicicollis* (Nilgiri Hills) in the British Museum.

As I have had the opportunity of studying the types of both species, I can state without hesitation that they should be regarded as one species ; *simplicicollis* therefore sinks to a synonym of *virida*.

119. **Galerotella garoana** sp. nov.

General colour dirty brown ; fourth to eighth segments of antenna black, second and third pitch-brown, apices of ninth and tenth pitch-brown ; apices of tibiæ and tarsi blackish ; underside warm brown, in places blackish ; in some specimens upper side pitch-brown, head and pronotum with ill-defined blackish patches ; hair-clothing greyish-white.

Head : upper surface flattened, punctate ; frontal tubercles not prominent, punctate. Antenna slender, slightly shorter than the body ; third and fourth segments equal ; fifth very slightly shorter than fourth ; fifth to seventh nearly equal to one another ; eighth somewhat shorter than seventh ; eighth, ninth and tenth more slender, nearly equal to one another ; eleventh with the pointed apex slightly longer than tenth. *Prothorax* with the front and basal margins almost straight ; posterior lateral angles slightly wider than right angles ; from each of these angles the margin on each side obliquely straight or slightly rounded, convex in front of the middle and then constricted; upper surface uniformly and closely punctate; depressions not deep. *Scutellum* less coarsely punctate than either pronotum or elytra. *Elytra*: uniformly and closely punctate; hair-clothing dense; lateral margin slightly explanate; somewhat constricted behind the shoulders. *Underside* as densely clothed with hairs as the upper side; posterior tibia somewhat longer than either the front or middle tibia; first segment of posterior tarsus longer than the corresponding segment of either the front or middle tarsus; claw-segment very long.

Length, 9 mm.; *breadth*, 4·75 mm.; *length* of antenna, 6 mm.

Distribution. ASSAM: Garo Hills, above Tura, 15. vii.–30. viii. 1917 (*S. Kemp*).

Type in the British Museum; *paratypes* in the Indian Museum.

Described from eight examples.

120. **Galerotella euryobotryæ** sp. nov.

General colour brown; third to eleventh segments of antenna, tibiæ and tarsi black, the latter (tibiæ and tarsi) sometimes diluted with brown; hair-clothing whitish.

Head: upper surface completely and closely punctate; front flattish; frontal tubercles not prominent, covered with hairs, punctate. Antenna short, extending a little beyond the humerus; sixth to eleventh segments thickened; in the female third segment longer than fourth, the apical segments thicker; in the male third and fourth nearly equal, the apical segments less thickened; from the fifth the segments successively become shorter; eleventh pointed at the apex. *Prothorax*: anterior margin almost straight; posterior margin slightly undulate, cut away near the posterior angles; sides rounded but not strongly; upper surface completely and closely punctate, the depressions shallow. *Scutellum* punctate, but more finely than the pronotum or the elytra. *Elytra* closely and completely punctate; in some aspects each elytron with a faint trace of longitudinal costæ. *Underside*: hair-clothing as dense as the upper side; in the male the last visible abdominal sternite with a deep and sharp emargination; claw-segment long but not very long; inner branch of the bifid claw small and sharp.

Length, 7·75 mm.; *breadth*, 4 mm.

Distribution. BURMA: Maymyo, 17. v. 1909, on *Euryobotrya japonica.*

Type in the British Museum; *paratypes* in the Pusa Agricultural Institute.

Described from four examples.

Section IV. (All claws appendiculate *.)

A. Wingless, p. 273.
B. Wings present. Elytral punctures regularly and longitudinally striated, p. 282.
C. Wings present. Elytral punctures confused. Prothorax elongated, p. 287.
D. Wings present. Elytral punctures confused. Prothorax not elongated. Pronotum without depression, p. 291.
E. Wings present. Elytral punctures confused; if in some cases striated, the striæ not like those described under B. Pronotum with depression or depressions or at least with some trace of them, p. 424.

Section IV. A. (All claws appendiculate. Wingless.)

Key to the Genera.

1. Elytra complete, not slantingly cut away from the sutural angles	Khasia Jac., p. 273.
Elytra not complete, slantingly cut away from the sutural angles	2.
2. Antennæ short, robust	Swargia gen. nov., [p. 275.
Antennæ long, thin	Shaira gen. nov., [p. 277.

Genus **KHASIA** Jacoby.

Khasia Jac., Entomologist, xxxii, 1899, p. 83.

Genotype, *Khasia kraatzi* Jac.

The genus was founded on one species.

Body small, oblong, narrowed at the junction of prothorax and elytra and widened apically; not slantingly cut away at the sutural angles; antennæ and legs long and slender. Owing to the small size and peculiar shape of the body and to the length of the legs the insect superficially looks like a spider. Wingless.

Head exserted, large, broad, almost as long as the prothorax; vertex somewhat convex, impunctate but finely striated; behind each eye one or two long hairs in a shallow depression; root of antenna in a cavity; interantennal portion raised, behind it two round deep depressions which are lighter in colour than the surrounding surface; clypeus raised and continued backwards to the interantennal space; labrum large, quadrate, but not completely covering the mandibles; maxillary palpi large, visible from above, with the last segment small, conical, and two penultimate ones thickened. Eyes strongly convex, with the facets large and prominent. Antenna as long as the body; surface somewhat rough, covered with fine hairs; first segment long, club-shaped;

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* See remarks on p. 240 under *B. pallida* Jac.

second small, nearly half of third; fourth longer than third; in the female fifth somewhat shorter than fourth, in the male nearly equal; fifth, sixth and seventh nearly equal to one another; eighth very slightly shorter than seventh; ninth, tenth and eleventh more slender and almost equal to one another, eleventh pointed at apex. *Prothorax* longer than broad, broadest across the front end and gradually narrowed and constricted towards the posterior end; posterior margin emarginate in the middle to accommodate the scutellum; each side sharply margined, more so in the middle; upper surface sloping from the front towards the posterior margin, two depressions on the basal area divided by sharp median longitudinal ridge, smooth and impunctate; each corner with a prominent seta-bearing pore, the posterior ones situated some distance in front of the actual prothoracic angles; this may be an indication that these pores mark the points where the posterior prothoracic angles at one time existed morphologically. *Scutellum* broader than long, rounded at sides, convex above and smooth and impunctate. *Elytra* broader at base than prothorax, constricted behind the shoulders, then widening behind and again very slightly narrowing towards the apex; each side with a longitudinal ridge slightly recurved on the upper surface, and with rounded edge, surface outside the ridge vertical; humeral area elongated, raised; surface uneven, behind the scutellum surface depressed and on each side of this depression prominently raised; post-basal area deeply concave; smooth, almost impunctate except for a few very minute and fine punctures visible under a high magnification; besides these some blackish spots that seem as if they were situated under the surface; a few scattered, erect and fairly long whitish hairs. *Underside* covered with fine long hairs; all femora somewhat thickened, the hind ones slightly more so and longer than the others; posterior tibia longer than either the front or middle tibia; tarsi long and narrow, first segment long, second shorter, third feebly bilobed, claw-segment long, claws appendiculate; first segment of posterior tarsus longer than the corresponding segment of either the front or middle tarsus.

In ♀ the abdomen projects much beyond the apex of elytra.

Distribution. Along the HIMALAYAS to BURMA.

121. **Khasia kraatzi** Jacoby.

Khasia kraatzi Jac., Entomologist, xxxii, 1899, p. 83.

Shining dark pitch-brown, pronotum reddish-brown, six basal segments af antenna dark brown, seventh and eighth segments yellowish, last three segments black, legs yellow-brown with the basal halves of femora much lighter; the coloration of legs is not uniform, portions of tibiæ show alternate lighter and darker coloured patches, the tarsi tend to be always darker.

Length, 4 mm. ; *breadth*, 1·5 mm. ; antenna, 4 mm. ; front or middle leg, about 3 mm. ; hind leg, about 4 mm.

Distribution. PUNJAB : Murree Hills, Thobba. ASSAM : Khasi Hills (type-locality). BURMA : Ruby Mines (*Doherty*).

Type in the British Museum.

Genus **SWARGIA** gen. nov.

GENOTYPE, *Swargia nila* sp. nov.

Body fairly long, elytra at the sutural angles slantingly cut away and abbreviated in both sexes so that the abdomen is always exposed ; in dried specimens the abdomen does not retain its shape. Wingless.

Head as broad as the prothorax, exserted, a median longitudinal line on each side of which a large rounded wrinkled area ; surface sparsely hairy ; vertex not convex ; frontal tubercles raised, smooth, impunctate, unlike the area behind ; clypeus smooth, impunctate, with scattered, erect whitish hairs ; labrum broader than long, with an apical emargination, seen from above large enough to cover most of the mandibles though not completely ; maxillary palpi not long enough to be seen from above. Compared with the width of the head eyes small, and not strongly convex. Antenna robust, covered with hairs, extending to the point on the elytron where this latter is considerably narrowed, forming the triangular apical area ; first segment long and club-shaped ; second very slightly shorter than third ; fourth equal to third ; from the fifth the segments somewhat thickened ; each of the segments from second to fourth narrowed at base, gradually widening at the apex ; fifth somewhat shorter than fourth ; sixth somewhat shorter than fifth ; sixth to eleventh almost equal to one another, eighth in some aspects may look slightly stouter, eleventh somewhat thinner and bluntly pointed. *Prothorax* quadrate, with a tendency to be slightly narrowed posteriorly ; margins all round sharply delimited, edges rounded and slightly reflexed ; posterior margin with a small median emargination, anterior margin almost straight, lateral fairly straight ; the four corners widely rounded, each of the front corners with four erect, fairly long hairs, and each of the hind ones with two or three, these hairs are fragile ; a strongly impressed median longitudinal line, on each side of which the surface structure is variable, in some examples it is smooth, slightly depressed and sparsely covered with very fine punctures, and in others it is wrinkled, depressed and with a few coarse round pits, sometimes it is widely depressed along the median line; background always shagreened. *Scutellum* triangular, surface shagreened, with a faint median ridge. *Elytra* as broad at base as the prothorax, then slightly widening, considerably abbreviated in both sexes, exposing the abdomen which in dried specimens does not retain its original shape. Apical margin oblique; outer apical angles acutely rounded; sutural angles widely rounded; sometimes one elytron slightly overlaps the other; humerus sharply raised as a ridge, with the surface below vertical; sides finely margined; surface with the background shagreened and otherwise wrinkled with broken and irregular longitudinal lines. *Underside* covered with hairs; epipleuron considerably reduced but not altogether absent; legs fairly robust, covered with short hairs, hind tibia somewhat longer than either the front or middle tibia; tarsi fairly broad, hind tarsus somewhat longer than either the front or middle tarsus; claws appendiculate.

Distribution. THE HIMALAYAS, at high altitudes.

122. **Swargia nila** sp. nov.

Upper part of head, scutellum, elytra and abdomen greenish-blue, in some specimens the green component predominates, in others the blue, rarely a purplish sheen is seen, often the suture and edge of elytron all round with a distinct purple colour. The following parts are rich bright brown or darker brown :—Parts of head in front of the roots of antennæ, four basal segments of antenna, pronotum except a large irregular black patch, and legs. Six or seven apical segments of antenna, bilobed and claw-segments of tarsi blackish. Sometimes ill-defined basal portions of femora piceous; labrum and apices of mandibles piceous. The head, thorax and legs are often shining though sometimes dull; the rest of the body dull. In spite of slight variations the coloration is characteristic.

Length, 6·5–8·5 mm.; *breadth*, 3–4·5 mm.

Distribution. TIBET: Karoba Pass, 16,500 ft., 1904, twenty examples (*H. J. Walton*); Phari, 14,000–16,000 ft., 19–21. vii. 1924, eighteen examples; Ling-ka, 14,000 ft., 15. vii. 1924, two examples; Tinki Dzong, 14,000 ft., 14. vii. 1924, ten examples; Kampa Dzong, 15,000 ft., 17. vii. 1924, eleven examples; Dinka La, 16,000 ft., 18. vii. 1924, one example; Tingri, 14,500 ft., 4. vii. 1924, two examples (from all these localities by *R. W. G. Hingston*); Gyantse, 16,000 ft., 27. viii. 1928, one example (*F. M. Bailey*).

Type in the British Museum.

Described from sixty-four examples.

Genus **SHAIRA** gen. nov.

GENOTYPE, *Shaira maculata* sp. nov.

Body small, constricted at junction of pronotum and elytra, which are slantingly cut away at the sutural angles ; antennæ and legs long. Wingless.

Head exserted, as broad as prothorax ; vertex convex ; frontal tubercles large, flattish ; area behind fairly strongly elevated ; clypeus raised ; labrum small, broader than long ; maxillary palpi not very long. Eyes not large. Antenna slender, long ; first segment long and club-shaped. *Prothorax* quadrate, slightly narrowed behind ; edges on all sides margined with a strongly impressed line ; each corner with a seta-bearing pore. *Scutellum* sharply triangular, surface impunctate. *Elytra* as broad at base as prothorax, widening behind ; generally abbreviated, sometimes considerably ; owing to the shortness of the elytra the abdomen is exposed. *Underside* sparsely covered with scattered hairs ; legs long, slender, more thickly covered with hairs ; hind tibia longer than either the front or middle tibia ; hind tarsus longer than either the front or middle tarsus ; bilobed segment of tarsus feeble ; claws appendiculate.

Distribution. THE HIMALAYAS.

Key to the Species.

1. From head to near the apex of elytra a broad blackish stripe	*S. maculata* sp. n., [p. 277.
No such stripe	2.
2. Insect completely black	*S. krishna* sp. n., p. 278.
Insect warm brown	*S. andrewesi* (Jac.), [p. 279.
Insect generally dirty brown, with four or five piceous ill-defined patches on pronotum	*S. palnia* sp. n., p. 280.

123. **Shaira maculata** sp. nov.

General colour dirty brown, shining but not brightly, a broad blackish stripe on each side from the head to the apex of elytron, leaving a longitudinal median brown stripe on the vertex of head, on the pronotum and along the suture with a little area on each side ; scutellum brown ; ill-defined portions in the middle of femora and tibiæ fuscous.

Head long, vertical area convex, prominent, impunctate ; the whole of frontal area including the roots of antennæ, tubercles and clypeus is separated from the eyes and vertical area by a groove all round. Clypeus and labrum impunctate with a few scattered hairs. Antenna somewhat longer than the body ; first segment thickest ; second nearly half length of third ; fourth slightly longer than third ; fourth and fifth equal ; sixth very slightly shorter than fifth ; sixth to ninth equal ; tenth shorter than ninth ; eleventh shorter than tenth, pointed. *Prothorax* with anterior margin straight, lateral obliquely straight, posterior with a very feeble and wide emargination in the middle ; seta-bearing pores at the hind corners prominent ; upper surface uniformly convex from side to side, smooth, impunctate, finely shagreened. *Scutellum* large, broad at base. *Elytra* only slightly abbreviated, narrow at base, widening towards apex which is rounded ; lateral margins slightly reflexed ; a ridge from the humerus nearly to apex dividing the elytral surface into a horizontal and a lateral inclined portion, the latter hardly visible from above ; surface finely shagreened, impunctate, uneven, somewhat wrinkled behind the scutellum, the brown stripe along the suture flattish ; a few scattered erect hairs on the apical surface. *Underside* : epipleuron broad at base, abruptly and considerably narrowing in the postbasal region, and disappearing at about the middle.

Length, 6 mm. ; *breadth*, 3 mm.

Distribution. MANIPUR (*Doherty*).

Type in the British Museum.

Described from one example.

124. **Shaira krishna** sp. nov.

Entirely black, head, prothorax and scutellum more shining than other parts.

Head with the vertex smooth, convex, impunctate ; frontal tubercles flattish, with the surface granulate and a deep longitudinal incision between ; sides of clypeus in front of the roots of antennæ slightly concave. Eyes small and not strongly convex. Antenna extending to the middle of the body ; first segment longest ; second nearly half of third ; third and fourth nearly equal, each nodulate at apex ; fifth slightly shorter than fourth ; fifth and sixth equal ; seventh slightly shorter than sixth ; seventh to eleventh almost equal to one another ; seventh with a specialized area containing stronger bristles ; eleventh pointed at apex. *Prothorax* with a transverse depression in the middle parallel with the front margin and another in front of the hind margin ; upper surface uniformly convex from side to side, smooth and impunctate. *Scutellum* small, with the apex sharp. *Elytra* extremely short, hardly covering the first abdominal segment, narrow at base, widened behind ; lateral margins narrowly reflexed ; apex of each elytron widely rounded ; humerus prominent, rounded and convex ; surface uneven, longitudinally and irregularly striated ; suture shorter than lateral margin ; apical sutural angles widely rounded. *Underside* : the hair-clothing extremely sparse, but thicker on tibiæ; epipleuron present, narrow, very slightly broader at base than towards the apex.

Length, 6·5 mm.; *breadth*, 3·5 mm.

Distribution. South-Eastern Tibet: Tsangpo Valley, Tang La, 14,000–15,000 ft., 30. ix. 1924 (*F. Kingdon Ward*).

Type in the British Museum.

Described from one example.

Owing to several peculiar characters of this species I am not satisfied about its generic position.

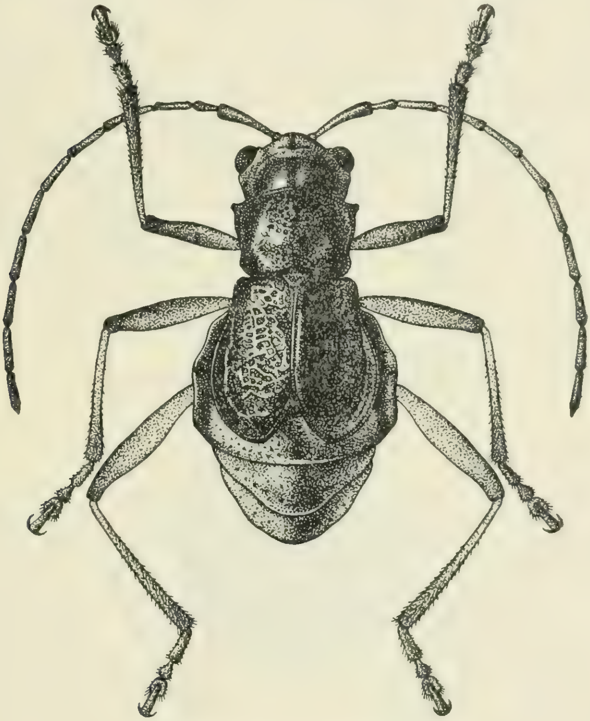

Fig. 79.—*Shaira andrewesi* (Jacoby).

125. **Shaira andrewesi** (Jacoby).

Khasia andrewesi Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 398.

General colour warm brown, vertex of head and elytra darker, sometimes with a purplish sheen.

Head with the upper surface convex, smooth and impunctate, a blackish longitudinal median line; frontal tubercles convex but not strongly, smooth and impunctate; a few fine hairs at the sides. Eyes small, somewhat distant from the roots of antennæ. Antenna much longer than the body; first segment the longest, nearly equal to second and third together; second nearly half of third; fourth very slightly longer than third; fifth slightly shorter than fourth; fifth to seventh nearly equal; eighth slightly shorter than seventh; ninth nearly equal to eighth; tenth slightly shorter than ninth; eleventh pointed at apex, equal to tenth. *Prothorax*: front margin straight, broader than hind margin which is also nearly straight, sides obliquely straight, slightly sinuate near the base; posterior seta-bearing pores larger than the anterior ones; surface finely shagreened, coarsely punctate, a slight ill-defined depression on each side near the middle. *Scutellum* with the apex rounded, surface smooth. *Elytra* narrowed at base and widened behind, abbreviated, apical margin rounded, slanting towards the suture; surface roughly sculptured with punctures confused, sometimes coalescing to form larger pits, and with ill-defined and irregular longitudinal ribs, one from the humerus nearly to the apex more prominent; sometimes one elytron lies over the other along the suture. *Underside* fairly thickly covered with fine hairs; epipleuron vertical, broader at base, narrowing towards the apex.

Length, 3·5 mm.; *breadth*, 2 mm.; *length* of antenna, 5 mm.; *length* of front leg, 3·5 mm.; *length* of hind leg, 4 mm.

Distribution. NILGIRI HILLS.

Type in the British Museum.

126. **Shaira palnia** sp. nov.

Body widened behind, attaining its greatest width across the apex. Antenna longer than the body. Indistinct longitudinal ribs along elytron. General colour dirty brown, with the following parts piceous or blackish or black:— Antennæ and legs more blackish than piceous, tibiæ often very slightly lighter; labrum and maxillary palpi black; a median longitudinal stripe on the upper surface of head, frontal tubercles, whole of the lateral area behind each eye and, usually continuous with it, almost the whole of the underside, clypeus diffusedly, piceous to black; four ill-defined patches on the pronotum piceous: two nearly in the middle, one on each side of the longitudinal middle line, sometimes tending to be confluent at base, the lateral patches large, diffused, covering a considerable area, sometimes extending to the front angle; in front of the basal margin a small depression, which is often piceous; scutellum piceous, sometimes lighter. The basal area of elytra is always lighter than the rest of the surface, which begins to become darker in a most diffused manner, attaining the darkest colour (sometimes black) on the apical area ; there is no perceptible region where the basal light colour ends and the darker shade begins ; in some cases the greater portion of the elytra is lighter, the extreme apical region only being piceous. Two median stripes always and one lateral stripe sometimes lighter ; the median stripes stand out prominently on the darker background colour of the elytra. Undersides of pro- and mesothorax lighter ; abdominal sternites piceous.

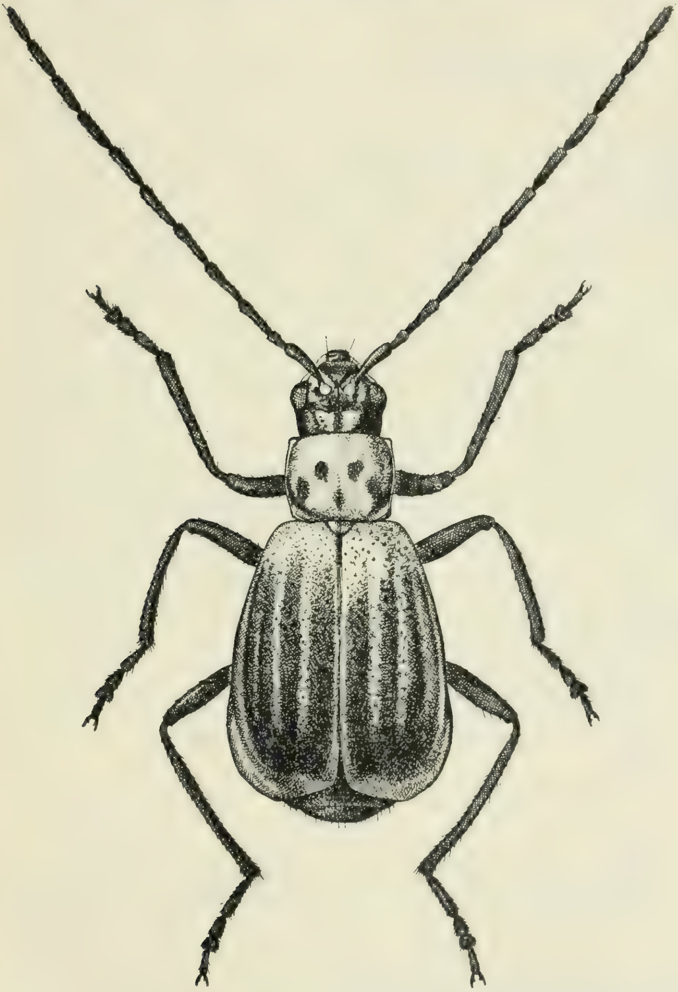

Fig. 80.—*Shaira palnia* sp. nov.

Head: a finely impressed median line along the vertical area and continued between the frontal tubercles to the front end of clypeus; labrum very slightly broader than long, with the front surface somewhat sloping; maxillary palpus visible from above; area in front of the root of antenna excavated; second segment about one-third the length of third; in the male third very slightly shorter than fourth and somewhat dilated at the apex, in the female third and fourth equal and apex of third not dilated; fourth and fifth equal; sixth very slightly shorter than fifth; sixth, seventh and eighth equal to one another; ninth very slightly shorter than eighth; tenth slightly shorter than ninth; tenth and eleventh equal, the latter pointed at apex. *Prothorax*: anterior margin almost straight, posterior slightly emarginate in the middle; lateral margin almost straight; at each corner the seta-bearing pore prominent; upper surface generally uneven, sloping down at each side; slightly depressed in the middle and at each side; finely shagreened. *Scutellum* large, surface indistinctly shagreened. *Elytra*: surface uneven, indistinctly punctate, the punctures neither well-impressed nor well-defined; several ill-defined but perceptible broad ribs; from the humerus a more well-defined sharp ridge towards the apex, this dividing the upper surface from the lateral into two distinct planes, the former horizontal and the latter inclined, hardly visible from above; apex of elytra slantingly cut away exposing the pygidium, more so in the female. *Underside*: epipleuron broader at base, abruptly narrowing at about the middle, and almost disappearing towards the apex.

Length, 5–5·5 mm.; *breadth*, 2–2·5 mm.

Distribution. South India: Palni Hills, Kodaikanal to Marian Shola, 6,800–7,200 ft., 23. viii. 1922 (*S. Kemp*).

Type in the British Museum; *paratypes* in the Indian Museum.

Described from seven examples.

Section IV. B. (All claws appendiculate. Wings present. Elytral punctures regularly and longitudinally striated.)

Key to the Genera.

Each elytron with eleven longitudinal rows of punctures including a short scutellar row, each row being equidistant from each other	Strobiderus Jac., [p. 283.
Each elytron with double rows of punctures with an indistinct short scutellar row, interstices between the double rows raised.	Theopea Baly, p. 285.

Genus **STROBIDERUS** Jacoby.

Strobiderus Jac., Notes Leyd. Mus. vi, 1884, p. 61; Weise, Archiv f. Naturgesch. lxviii, 1902, p. 155.

Syoplia Jac., Ann. Mus. Civ. Genova, xxiv, 1886, p. 85; Novit. Zool. i, 1894, p. 329; Weise, Deutsche Ent. Zeitschr. 1902, p. 416.

GENOTYPE, *Strobiderus excavatus* Jac. (Sumatra, Rawas).

At the time of erecting the genus Jacoby had one species before him.

Body oblong, slender, parallel-sided. *Head* exserted with the vertex convex; frontal tubercles small, convex; clypeus not raised; labrum broader than long with the front margin slightly emarginate, almost completely covering the mandibles; maxillary palpus large, conical. Eyes strongly convex. Antenna slender, long, in some species somewhat longer than the body; covered with longish hairs; first segment long and club-shaped. *Prothorax* broader than long; upper surface convex, smooth, without depressions. *Scutellum* small, triangular, with the apex rounded. *Elytra* broader at base than the prothorax; strongly punctate-striate, the longitudinal series of punctures being very regular and the interstices between them of equal width; covered with erect hairs. *Underside* sparsely covered with erect hairs; epipleuron very narrow, continued to the apex, only slightly broader towards the base; legs long, slender, tarsi very long, bilobed segment feeble, claws appendiculate.

Several species have peculiar secondary sexual characters in the male: in the genotype the apex of elytra is produced into flattened protuberance and preceded by a deep inward excavation, and the antennæ are longer.

Distribution. INDIA. SUMATRA. JAVA. PHILIPPINE ISLANDS. AFRICA.

127. **Strobiderus nigripennis** Jacoby.

Syoplia nigripennis Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 132.

General colour brown with the elytra black, underside somewhat darker brown, hair-clothing of elytra brownish.

Head with the upper surface smooth and impunctate; clypeus impunctate; a few scattered erect hairs behind the eyes and on the labrum. Second segment of antenna about one-third the length of third; fourth longer than third; fourth and fifth nearly equal; sixth very slightly shorter than fifth; seventh shorter than sixth; seventh to ninth nearly equal to one another; tenth shorter than ninth; eleventh equal to tenth, pointed at the apex. *Prothorax* margined on all sides and bearing fine erect hairs, in addition the four corners with similar hairs arising from the usual pores ; upper surface smooth, seen under a high magnification finely and scatteredly punctate. *Scutellum* with the surface

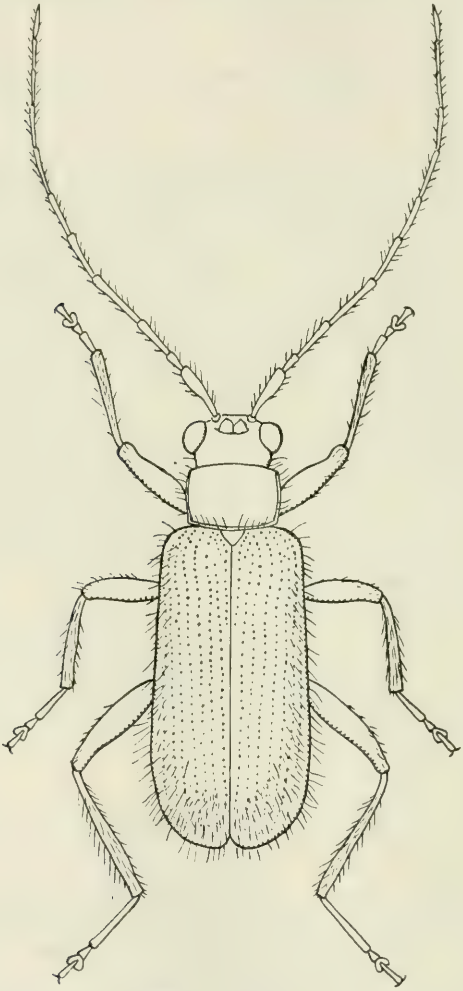

Fig. 81.—*Strobiderus nigripennis* Jacoby. In the illustration some segments of the antenna are drawn foreshortened.

smooth and impunctate. *Elytra* : humerus prominent ; on each elytron, including a long scutellar row, eleven longitudinal rows of punctures ; up to the humeral line the rows equidistant from one another, below it a broader interval between tenth and eleventh rows; on the extreme apical area punctures not strongly impressed; completely covered with erect hairs, which are of two kinds, long and short, longer hairs sparser than the shorter ones. *Underside*: hind tarsus slightly shorter than the hind tibia, the first segment being almost two-thirds of the tibia; middle tarsus bears to middle tibia a similar proportion; front tarsus very short compared with the length of the front tibia.

In ♀ the middle tarsus not so long as in ♂.

Length, 6 mm.; *breadth*, 2·5 mm.

Distribution. MYSORE: Bangalore. MALABAR COAST: Mahé, viii. 1901 (*Maindron*).

Type in the British Museum.

128. **Strobiderus albescens** (Motschulsky).

Diabrotica albescens Motsch., Bull. Mosc. 1866, p. 415.

Resembles in form *Diabrotica vittata* (Europe and America). Elongate-ovate, convex, strongly punctate, shining, pale testaceous; eyes, antennæ, thorax, margins and suture of elytra black; underside fuscous. Pronotum with a transverse impression. Elytra half as broad again as the prothorax; strongly punctate-striate.

Length, about 2·5 mm.; *breadth*, about 1·5 mm.

Distribution. CEYLON: mountains of Nuwara Eliya.

Type: location unknown to me. Probably in the Moscow University Museum.

I have not seen any specimen of this species, and it is included in this genus because of the punctate-striate character of the elytra, a character which is not common in the GALERUCINÆ.

Genus **THEOPEA** Baly.

Theopea Baly, Trans. Ent. Soc. Lond. (3) ii, 1864, p. 237; Chapuis, Gen. Col. xi, 1875, p. 242.

Ozomena Harold, Col. Hefte, xv, 1876, p. 132; Allard, Comptes-Rendus Soc. Ent. Belg. xxxiii, 1889, p. cxi (nec Chevr., 1845).

GENOTYPE, *Crioceris impressa* Fabricius (Sumatra). Fixed by Baly.

Body oblong, slender, parallel-sided. *Head* with the vertex not very convex; frontal tubercles well developed, smooth, impunctate; clypeus sharply raised; labrum broader than long with the apical margin emarginate in the middle, almost completely covering the mandibles; maxillary palpi large, visible from above, with the apical segment sharply conical.

Eyes strongly convex. Antenna stoutish, fairly long, extending to three-quarters of the length of elytron, covered with bristly hairs ; first segment long, club-shaped, smooth, shining ; second very small ; generally a few apical segments differ in colour from the rest. *Prothorax* longer than broad, almost as broad as the head ; lateral and basal margins with sharp edges ; each corner with a seta-bearing pore ; upper surface smooth, almost impunctate, a large and deep excavation nearly in the middle on each side of the middle line. *Scutellum* triangular with the apex acute, and the surface smooth and impunctate. *Elytra* much broader at the base than the prothorax ; punctate-striate, each elytron with double rows of punctures, with an indistinct short scutellar row, a single sutural row and below the humerus between the humeral line and extreme lateral margin three rows ; punctures in the double rows often joined together in pairs ; interstices between the double rows raised ; on the extreme apical area the rows converge and meet. *Underside* sparsely covered with fine hairs ; legs long, slender ; hind tarsus longer than either the middle or the front tarsus, and with its first segment also longer ; claws appendiculate.

Secondary sexual character. In ♂ the intermediate segments of antenna are thickened and somewhat laterally compressed. In ♀ they are not so modified.

Distribution. BURMA. MALAY PENINSULA. SUMATRA. JAVA. BORNEO.

129. **Theopea nigricollis** Jacoby.

Theopea nigricollis Jac., Entomologist, xxv, 1892, Suppl. p. 87.

General colour black, elytra bright metallic deep blue, three apical segments of antenna yellow-brown with the extreme apex fuscous.

Head : upper surface shining, impunctate. Second segment of antenna globular ; third very slightly shorter than fourth ; fifth almost equal to fourth ; third, fourth and fifth thinner at base gradually thickening towards the apex ; sixth, seventh and eighth much thicker ; sixth shorter than fifth and nearly equal to seventh ; eighth slightly shorter than seventh ; ninth, tenth, eleventh slender and nearly equal to one another ; apex of eleventh slantingly cut away. *Prothorax* shining, seen under a high magnification a few very minute scattered punctures. *Scutellum* with the surface slightly convex. *Elytra* : on the area behind the scutellum the punctures coalescing render the beginnings of the scutellar and sutural rows indistinct ; besides the scutellar and sutural rows on each elytron seven double rows up to the humeral line ; the three rows on the marginal area are reduced to two rows near the base and towards the apex.

Length, 6 mm. ; *breadth*, 2·5 mm.

Distribution. BURMA. PERAK (type-locality).

Type in the British Museum.

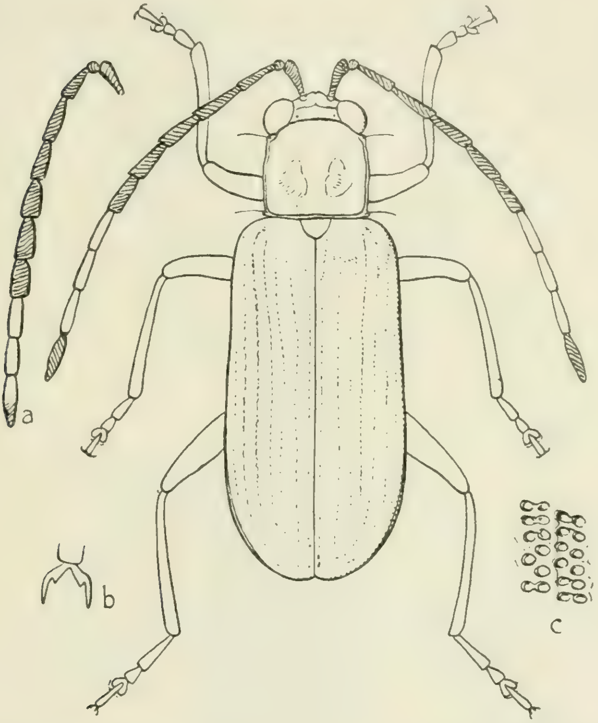

Fig. 82.—*Theopea nigricollis* Jacoby. *a*, more enlarged aspect of antenna; *b*, claws; *c*, greatly enlarged aspect of punctation, showing the fusion of punctures in some cases.

SECTION IV. C. (All claws appendiculate. Wings present. Elytral punctures confused. Prothorax elongated.)

Key to the Genera.

Insect without brilliant metallic coloration	HEMYGASCELIS Jac., p 288.
Insect with brilliant metallic coloration...	KONBIRELLA Duviv., [p. 290.

Genus **HEMYGASCELIS** Jacoby.

Hemygascelis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 277.

GENOTYPE, *Hemygascelis longicollis* Jacoby.

This is a monotypic genus.

Body oblong, narrow, slightly broadening towards apex of elytra ; head and prothorax together forming one long narrow snout ; antennæ and legs very long and slender.

Head considerably exserted, elongate, almost as long as and as broad as the prothorax, upper surface flattish, smooth, impunctate, with fine median longitudinal line ; frontal tubercles well developed ; surface of clypeus large, raised as a whole, smooth, impunctate and with a few fine whitish hairs along the lateral edges ; labrum broader than long with a median emargination, a few long whitish hairs ; maxillary palpus long, most of it visible from above, last segment pointed and longer than the previous one, antepenultimate segment longer and somewhat club-shaped. Eyes oblong-ovate, each with one fine, erect hair in the middle of its hind margin. Antenna extending to the apex of elytron ; hairs on the surface very small ; first segment longest, club-shaped ; second shortest ; third slightly shorter than fourth ; fourth to ninth almost equal to one another ; tenth slightly shorter than ninth ; tenth and eleventh almost equal, latter drawn out to a point. *Prothorax* narrow, much longer than broad, tending to be cylindrical ; hind margin with a slight emargination in the middle ; each lateral margin with a fine ridge, bisinuate ; upper surface sloping down considerably on each side, with a depression in the middle on each side of the median longitudinal line, smooth, impunctate except for a few punctures on the basal area visible under high magnification. *Scutellum* triangular with the apex rounded, surface smooth, impunctate. *Elytra* much broader at base than the prothorax ; humerus raised ; some basal area slightly convex ; surface confusedly punctate, in some portions the punctures by coalescing have produced a certain but not very prominent rugosity ; seen at certain angles one or two faint longitudinal ribs ; on the apical and lateral areas a few short scattered whitish hairs. *Underside* covered with fine hairs ; epipleuron broader at base and very narrowly continued to the apex ; femora projecting much beyond the body, tibiæ and tarsi nearly equal in the three legs.

Secondary sexual characters. In ♂ the last visible abdominal sternite has an extraordinarily large and deep cavity overhung on all sides, particularly on its basal margin, with long and thick hairs, the visible tergite is a large curved plate with a deep but small median emargination. This tergite appears to be associated with the modified sternite in function, so far as one can judge from the relative positions of the two structures.

The floor of the deep cavity has a fine median longitudinal line and a clothing of fine hairs. Owing to this modification the other abdominal sternites have been considerably narrowed in the middle; but the first is longitudinally raised in the middle and produced to a blunt point reaching the base of the cavity.

In ♀ the last visible abdominal sternite very large but without any cavity, and first is not produced to a point.

Distribution. SOUTH INDIA.

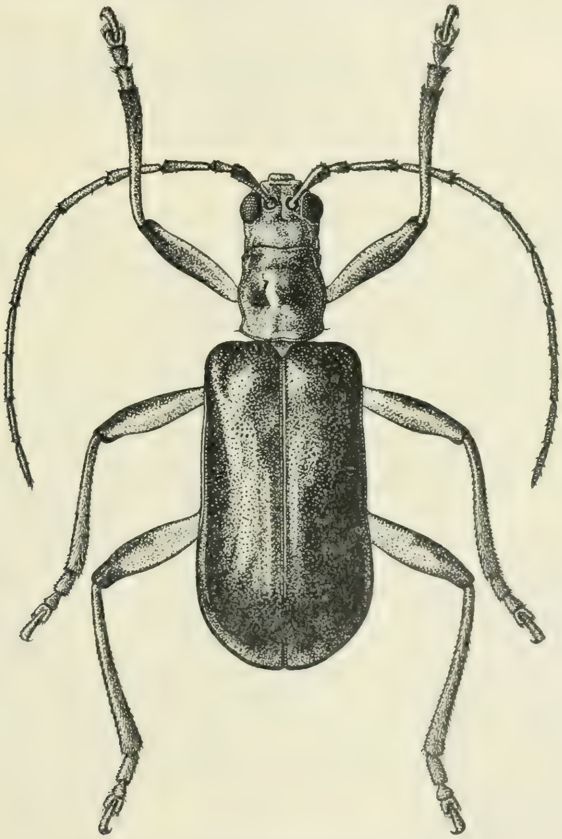

Fig. 83.—*Hemygascelis longicollis* Jacoby.

130. **Hemygascelis longicollis** Jacoby.

Hemygascelis longicollis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 278.

General colour brown varying from a lighter to a deeper shade; elytra black, sometimes with a metallic greenish tint;

antennæ, upper surfaces and apical halves of femora, tibiæ and tarsi piceous or blackish; underside and a narrow margin of elytra from the base to the middle, or sometimes a little beyond, including the epipleura, brown; scutellum always brown; sometimes suture for a short distance from the base very narrowly brown.

Length, 8 mm.; *breadth*, 3 mm.; *length* of pronotum, 2 mm.; *breadth* of pronotum, 1·5 mm.; *length* of antenna, 8 mm.

Distribution. KANARA. NILGIRI HILLS (*H. L. Andrewes*).

Type in the British Museum.

Genus **KONBIRELLA** Duvivier.

Konbirella Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 438.

GENOTYPE, *Konbirella cardoni* Duviv.

This is a monotypic genus.

Body oblong.

Head with a transverse channel across the interocular area; frontal tubercles strongly raised in front; labrum broader than long with a slight emargination in the middle of the anterior margin; maxillary palpus fairly well developed, second segment elongated with the apex thickened; third conical, as broad as long; fourth almost as long as third with the apex conically pointed. Antenna passing beyond the body by about one-third of its length; filiform, fairly robust; third segment twice as long as second; fourth hardly longer than second and third together; the following segments gradually and progressively diminish in length; last segment pointed. *Prothorax* nearly three times longer than broad; sides finely margined; surface behind the middle with a transverse impression which is interrupted in the middle line. *Scutellum* broadly rounded at the apex. *Elytra* distinctly broader than the prothorax; inner margin of humerus and behind the scutellum impressed; sides narrowly margined; confusedly punctate. *Underside*: epipleuron moderately broad, continued up to the apex. Legs fairly robust; femora hardly developed, entirely depressed on the underside; tibiæ subcylindrical, slightly broadened towards the apex; first segment of posterior tarsus as long as the following two together; claws appendiculate.

Distribution. INDIA.

The extraordinary length of the antennæ and of the prothorax are two distinguishing features of this genus.

131. **Konbirella cardoni** Duvivier.

Konbirella cardoni Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 438.

Brilliant dark blue; elytra violaceous; labrum bronzy-black; palpi and antennæ black; scutellum bronze.

Head smooth. *Prothorax* almost smooth; very finely punctate, especially towards the anterior angles which are somewhat thickened, projected and directed outwards; anterior and posterior margins straight; posterior angles obliquely cut away; lateral margin almost straight up to the transverse impression and then slightly convexly rounded; surface evenly convex on each side of the transverse impression. *Scutellum* smooth, very shining. *Elytra* fairly closely punctate, the punctures partly obliterated on the lateral surface and towards the apex. *Underside* thinly covered with greyish-red pubescence, more thickly at the sides of the metathorax and on the undersides of tibiæ and tarsi.

Length, 5·5–6 mm.; *breadth*, 2·5 mm.

Distribution. BENGAL: Konbir, Nowatoli.

Type location unknown to me.

SECTION IV. D. (All claws appendiculate. Wings present. Elytral punctures confused. Prothorax not elongated. Pronotum without depression.)

Key to the Genera.

1.	Small narrow beetles; length, 5 mm., usually less, and breadth, 2·5 mm.; not ovate; first segment of posterior tarsus not long, always much less than half of the tibia	2.
	No such combination of characters	9.
2.	Third segment of antenna twice as long as the second	3.
	Third either nearly equal to or only slightly longer than second	4.
3.	Prothorax distinctly narrowed at base	ANTHIPHULA Jac., [p. 293.
	Prothorax not narrowed at base	ERGANOIDES Jac., [p. 294.
4.	Fourth segment of antenna nearly three or four times longer than third	5.
	Fourth not so long relative to the third	6.
5.	Fourth much thicker than third	ANASTENA gen. n., [p. 296.
	Fourth almost as thin as the third	KANARELLA Jac., [p. 297
6.	Fourth slightly longer than third	7.
	Fourth equal to third	8.
7.	Beetle 3·5–4 × 2–2·5 mm.; upper side dark bluish, underside piceous with the breast nearly black	TAPHINELLINA gen. n., [p. 299.
	Beetle 3 × 1·5 mm.; upper side pitch-brown with purplish-bluish-greenish sheen, underside red-brown	CHARÆA Baly, p. 300.
8.	Antenna slender, extending beyond the middle of elytron	PSEUDOIDES Jac., [p. 302.
	Antenna short, extending a little beyond the humerus	EUMELEPTA Jac., [p. 304.

9. Insect 6·3–7·5 mm. long; antenna of ♂ somewhat longer than the body, of ♀ shorter, third segment nearly three times longer than second and one-third longer than fourth; black; head, prothorax and femora obscure red; elytra greenish-blue. Eustena Baly, p. 307.

No such combination of characters ...... 10.

10. Marked difference between the basal constriction and the apical expansion of fourth to ninth segments of antenna.... Cneorides Jac., [p. 307.

No such marked difference in the antennal segments .... 11.

11. Insect 10 × 5·25 mm.; parallel-sided; antenna short, robust, extending a little beyond the humerus, third segment twice as long as the second and equal to fourth. Astena Baly, p. 310.

No such combination of characters ...... 12.

12. Insect 10 × 4·5 mm.; parallel-sided; antenna long, slender, extending to middle of elytron, third segment longer than second and fourth much longer than third .... Liroetes Weise, [p. 311.

No such combination of characters ...... 13.

13. Insect plump, broadened posteriorly, 7·5–11·5 × 5–7·5 mm.; antenna short, extending in ♀ a little beyond the humerus, in ♂ slightly longer; upper side shining brown without any metallic sheen...... Miltina Chap., p. 313.

No such combination of characters ...... 14.

14. Insects 5·5–10·5 × 3·5–5·5 mm.; antenna not very thin, extending a little beyond the humerus, second and third segments small, latter sometimes slightly longer than former; upper side with metallic coloration or other coloration with metallic sheen .... Morphosphæra Baly, [p. 316.

No such combination of characters ...... 15.

15. Body oblong, narrowed towards the apex, 7 × 4 mm.; antenna slender, extending to middle of elytron, second segment short, third longer than second; upper side shining blue-green, abdominal sternites brown; viewed at certain angles faint longitudinal ridges on elytron .... Bijukta gen. n., [p. 321.

No such combination of characters ...... 16.

16. Insect 7 × 5 mm.; convex, narrowed towards the apex; antenna slender, extending to the middle of elytron, third segment twice as long as the second, fourth slightly longer than third; elytra deep violet .... Emathea Baly, p. 324.

No such combination of characters ...... 17.

17. Oblong-ovate, parallel-sided, 7·5 × 4 mm.; antenna robust, extending nearly to the middle of elytron, second and third segments short, almost equal, fourth longer than third; metallic blue, sometimes with a violet sheen .... Agelastica Redtb., [p. 326.

No such combination of characters ...... 18.

18. Insect oblong, 6 × 3 mm.; pronotum short, lateral margin not markedly reflexed; basal area of elytron distinctly convex; epipleuron very broad at base and abruptly narrowed at the middle ...... Taphinella Jac., [p. 328.
    No such combination of characters ...... 19.
19. Insect 6 × 3·5 mm.; pronotum with a short basal longitudinal notch on either side of the middle (absent in one species); antenna extending to the middle of elytron (but nearly as long as the body in the species in which the pronotal notches are absent), second segment small, third longer than second; head, prothorax and legs brown, elytra metallic blue sometimes with a violet sheen .. Solephyma nom. nov., [p. 329.
    No such combination of characters ...... 20.
20. Insect slender, 5 × 2 mm.; third segment of antenna nearly equal to second; pronotum nearly quadrate, not strongly convex; elytra parallel-sided, not strongly convex and not distinctly punctate; pale brown .... Cneoranella gen. n., [p. 334.
    No such combination of characters ...... 21.
21. Body slightly broadened behind; antenna long, with the third segment longer than second; pronotum strongly convex; elytra fairly strongly convex and distinctly punctate .... Cneorane Baly, [p. 335.
    No such combination of characters ...... 22.
22. Small ovate beetles, sometimes larger; generally differentiated as follows, although characters variable *:—
    First segment of posterior tarsus compared with the tibia not long ...... Dercetis Clark, [p. 348.
    First segment of posterior tarsus compared with the tibia very long, more than half .... Monolepta Erichs., [p. 373.

Genus **ANTHIPHULA** Jacoby.

Anthiphula Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 991.

Genotype, *Anthiphula semifulva* Jac.

At the time of erecting this genus Jacoby had one species before him.

Body narrow, oblong.

Head in the male not longer than broad, impunctate; frontal tubercles strongly developed, broad, transverse; penultimate segment of maxillary palpus thickened. Antenna long, filiform, more than half the length of the body; segments rather robust; second short; third twice as long as second; fourth slightly longer than the preceding segments; the rest rather elongate, equal. *Prothorax* scarcely one-half broader than long; very strongly narrowed at base; each

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* In doubtful cases consult the keys of *Dercetis* and *Monolepta*.

lateral margin strongly rounded before the middle ; anterior lateral angles rather strongly produced outwards ; upper surface convex, impunctate, without depression. *Elytra* narrowly parallel ; basal portion raised ; surface extremely finely punctate in irregular rows, the punctation almost entirely absent at the apex. *Underside* : epipleuron extremely broad, continued to the apex. Legs robust ; all femora rather thickened ; tibiæ without apical spine ; first segment of posterior tarsus scarcely longer than second ; claws appendiculate.

Distribution. BURMA.

132. **Anthiphula semifulva** Jacoby.

Anthiphula semifulva Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 991.

Pale brown, three basal segments of antenna brown, the rest fuscous ; in the male elytra fuscous with violaceous tint and finely punctate, in the female elytra brown and more strongly punctate, somewhat larger than the male.

Length, 2–3 mm.

Distribution. BURMA : Teinzo (*Fea*). Two specimens were taken *in copula.*

Type in the Genoa Museum.

I have not seen the type. The above description is adapted from Jacoby's original account.

Genus **ERGANOIDES** Jacoby.

Erganoides Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 125.

GENOTYPE, *Erganoides flavicollis* Jac.

This is a monotypic genus.

Body oblong, small, apex very slightly narrowed.

Head together with the eyes slightly narrower than the prothorax ; upper surface not very convex, separated from the frontal tubercles by a transverse impressed line which is delimited on either side by the eyes ; frontal tubercles fairly well developed, impunctate ; clypeus broadly raised ; labrum small, broader than long, with a few scattered longish hairs ; maxillary palpus with the apical segment small, conical, sharply pointed, and the penultimate thickened. Eyes convex but not very strongly. Antenna slender, extending to about the middle of elytron ; first segment long, club-shaped ; second small, nearly half of third ; third shorter than first and slightly shorter than fourth ; fifth slightly shorter than fourth ; sixth shorter than fifth ; sixth to eleventh segments nearly equal to one another ; eleventh bluntly pointed ; the segments are sparsely covered with fine short hairs. *Prothorax* broader than long ; front margin straight ; posterior margin widely rounded, obliquely straight towards the lateral angles ; each side uniformly convex, slightly narrowing in front, with the border finely margined; each corner with a seta-bearing pore; upper surface uniformly convex, without depressions, smooth, with indistinct punctures, under a low magnification appearing impunctate. *Scutellum* small, sharply triangular, with the surface smooth, impunctate. *Elytra* broader at base than the prothorax; each lateral border finely margined; surface somewhat convex, humerus not prominent, closely covered with fine punctures which have a tendency, seen in certain aspects, to form longitudinal rows. *Underside* fairly thickly covered with fine hairs; epipleuron broad at base, abruptly narrowed behind the middle, continued very narrowly for a certain distance but not to the apex. Legs slender, each tibia with an apical spinule; tarsi fairly long; claws appendiculate.

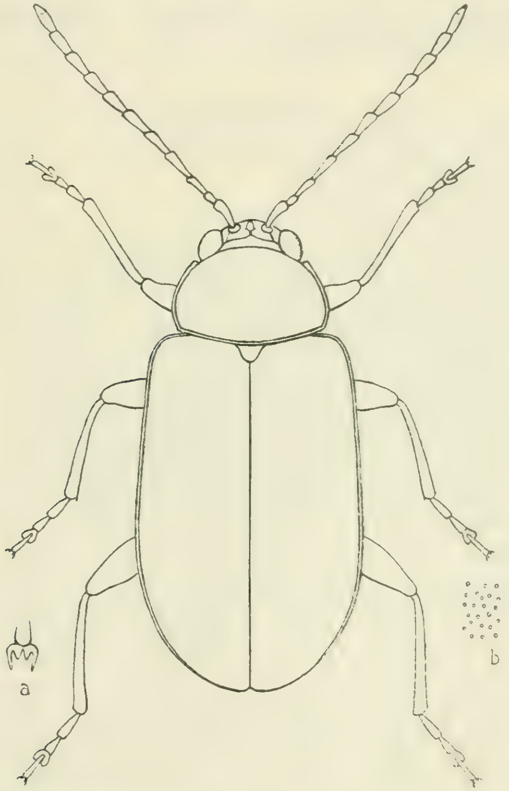

Fig. 84.—*Erganoides flavicollis* Jacoby. *a*, appendiculate claws; *b*, disposition of elytral punctures.

Distribution. SOUTH INDIA.

133. **Erganoides flavicollis** Jacoby.

Erganoides flavicollis Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 125.

Head, antennæ, prothorax and legs yellow-brown ; elytra dark bluish, sometimes diluted with pitch-brown ; underside blackish.

Length, about 4 mm. ; of antenna, about 2·5 mm. ; *breadth*, 2 mm.

Distribution. NILGIRI HILLS (*Andrewes*). ANAMALAIS.

Type in the British Museum.

Genus **ANASTENA** gen. nov.

GENOTYPE, *Astena nigromaculata* Jac.

This is a monotypic genus.

Body small, oblong.

Head together with the eyes as broad as the front margin of prothorax ; upper surface gently convex, seen under a high magnification with a few feeble and scattered punctures, separated from the frontal tubercles by a feebly impressed line extending from one eye to the other ; frontal tubercles feebly developed, surface flattish, smooth and impunctate ; clypeus raised, with a few scattered hairs ; labrum broader than long, with the front margin rounded but having a slight emargination in the middle, surface smooth and with a few longish hairs ; maxillary palpus with the apical segment long, conical, almost equal to the penultimate segment. Eyes strongly convex. Antenna long, slender, extending to the apical area of elytron ; three basal segments shining, with a few hairs ; rest of the segments thickly covered with hairs ; first segment long and club-shaped ; second and third very small and nearly equal ; fourth about three times longer than third ; fourth to seventh nearly equal to one another, each gradually thickened towards the apex ; eighth slightly shorter than seventh : eighth to eleventh nearly equal to one another, last sharply conically pointed at the apex. *Prothorax* broader than long, very slightly narrowed towards the base, sides and basal border margined but not front border ; front margin almost straight ; posterior margin widely and uniformly rounded ; each side fairly broadly reflexed ; anterior lateral angles thickened, posterior widely obtuse ; each corner having a long seta arising from a pore ; upper surface convex from side to side seen under a high magnification, punctate sparsely on the middle area and somewhat more closely laterally. *Scutellum* triangular with the apex rounded and the surface smooth and impunctate. *Elytra* broader at base than the prothorax ; humerus though convex not very prominent ; each lateral border narrowly margined and slightly reflexed; surface fairly closely and confusedly covered with punctures which are fine and not well impressed, seen under a high magnification a certain unevenness of the surface can be observed. *Underside* sparsely covered with fine hairs; epipleuron much broader at base, concave, abruptly narrowing near and vanishing behind the middle. Legs fairly long, slender; tibiæ and tarsi long; posterior tibia longer than others; first segment of posterior tarsus longer than the following two and than each of the corresponding segments of other tarsi; claws appendiculate.

Distribution. INDIA.

In describing the following species Jacoby was not sure of its generic position because it differs in many respects from the genotype of *Astena*. I therefore erect a new genus for its reception.

134. **Anastena nigromaculata** (Jacoby).

Astena (?) *nigromaculata* Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 275.

General colour shining brown with the following parts black or blackish: antennæ except three basal segments, eyes, abdominal sternites and large patches on elytra; tarsi darkish. Each elytron may be completely covered with black except the suture and a narrow margin all round which share the general colour; in some cases a basal patch is separated off by a large invasion of brown proceeding from the suture outwards, but often the separation is incomplete, the basal patch still remaining connected with the main patch by an isthmus.

Length, 5 mm.; *breadth*, 3 mm.

Distribution. BOMBAY: Belgaum, 11. viii. 1910, on *Zizyphus* (*T. B. Fletcher*); Kanara.

Type in the British Museum.

Genus **KANARELLA** Jacoby.

Kanarella Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 279.

GENOTYPE, *Kanarella unicolor* Jac.

This is a monotypic genus.

Body oblong, very slightly widened behind, apex rounded.

Head together with the eyes as broad as the front margin of the prothorax; upper surface hardly convex, separated by an impressed transverse line from the frontal tubercles, which are not strongly raised; clypeus raised; labrum small, broader than long; these parts sparsely covered by fine hairs. Eyes strongly convex. Antenna somewhat shorter than the body; first segment long, club-shaped; second and third small, almost equal; fourth about four times as long as the third; fifth shorter than fourth; fifth to ninth nearly equal to one another; tenth somewhat shorter than ninth; eleventh nearly equal to tenth, sharply pointed at apex. *Prothorax* nearly as broad as long, somewhat narrowed towards the base; sides obliquely straight, and a little portion slightly rounded before the middle, margin narrowly reflexed; anterior and posterior margins almost straight; each corner with a seta-bearing pore; upper surface uniformly convex, without any depressions at all, and impunctate, but one or two punctures here and there especially on the lateral area may be detected under a high magnification. *Scutellum* small, broad, triangular, with the apex rounded and the surface impunctate. *Elytra* much broader at base than the prothorax; shoulders prominent. Surface very minutely and scatteredly punctate, the punctures shallow and obsolete-looking. *Underside* sparsely covered with fine hairs; epipleuron broader at base, abruptly narrowed behind the middle and vanishing before reaching the apex; legs longish, slender, first segment of posterior tarsus longer than corresponding segment of either the front or the middle tarsus, and nearly equal to the following segments together; claws appendiculate.

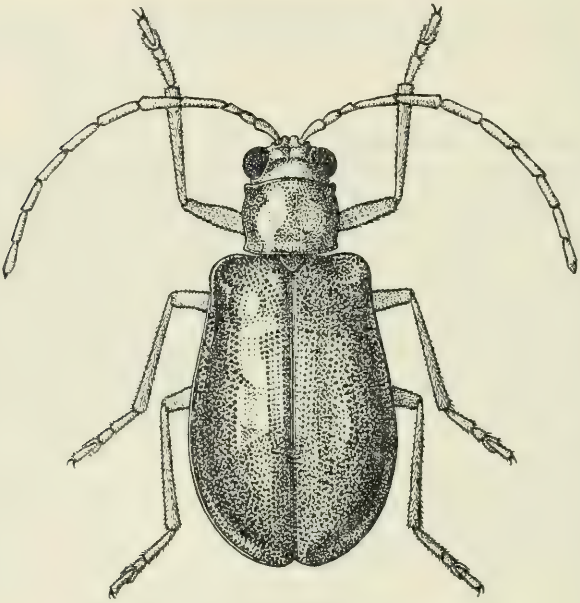

Fig. 85.—*Kanarella unicolor* Jacoby.

Distribution. INDIA.

135. **Kanarella unicolor** Jacoby.

Kanarella unicolor Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 280.

Completely yellow-brown in colour ; eyes black.
Length, 5 mm. ; *breadth*, 2·5 mm.
Distribution. KANARA. ASSAM.
Type in the British Museum.
The Assam specimen is somewhat darker brown.

Genus **TAPHINELLINA** gen. nov.

GENOTYPE, *Taphinella bengalensis* Jac.

This is a monotypic genus.

Body small, ovate, somewhat narrowed towards the apex.

This genus is separated from *Taphinella* because *bengalensis* differs from *nigripennis* (genotype of *Taphinella*) (1) in not having a deeply impressed transverse line between the eyes, (2) in having the frontal tubercles broader and not very strongly raised, (3) in having the antenna finer, (4) in having the pronotum relatively longer, (5) in having the lateral margins of pronotum more reflexed, (6) in not having the basal area of elytron appreciably convex, (7) in not having the sulcation on the inner side of humerus, and (8) in having the epipleuron broadly continued to the apex. The distribution of *Taphinella* is from Burma extending eastwards and southwards.

Distribution. BENGAL.

136. **Taphinellina bengalensis** (Jacoby).

Taphinella bengalensis Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 140.

Colour of upper side shining dark bluish with a tendency to be diluted by pitch-brown or black ; frontal tubercles rich brown ; in some cases clypeus and labrum brownish ; two or three basal segments of antenna brown, the rest blackish ; seta-bearing pore at each corner of prothorax touched with brown ; legs brown, underside piceous, breast nearly black.

Head : upper surface, seen under a high magnification, with some sparsely distributed, very fine punctures ; not separated from the frontal tubercles by a deeply impressed transverse line ; frontal tubercles broadish, not very strongly raised, smooth, impunctate ; clypeus with a few fine punctures. Antenna fine, extending to a short distance beyond the humerus ; first segment long, club-shaped ; second not small, slightly shorter than third ; fourth slightly longer than third ; fifth almost equal to fourth ; sixth slightly shorter than fifth ;

from the sixth the segments are slightly thicker and almost equal to one another. *Prothorax*: upper surface strongly convex; each side strongly convex, with the margin slightly expanded and reflexed; at each corner the seta-bearing pore is prominent, the anterior ones not differing from those of the posterior corners; the convex surface, seen under a high magnification, with some scattered indistinct punctures, otherwise impunctate. *Elytra* hardly broader at base than the prothorax; each side uniformly curved, narrowing slightly towards the apex; basal area not appreciably convex; sulcation on the inner side of humerus not deep; closely covered with punctures which have a tendency to longitudinal seriation only on the area near the suture. *Underside*: epipleuron prolonged broadly to the apex.

Length, 3·5–4 mm.; *breadth*, 2–2·5 mm.

Distribution. BENGAL: Mandar (*Père Cardon*).

Type in the British Museum.

Genus **CHARÆA** Baly.

Charæa Baly, Cist. Ent. ii, 1878, p. 376; Second Yarkand Miss. 1878, p. 30.

GENOTYPE, *Charæa flaviventre* Baly.

This is a monotypic genus.

Body small, slender, ovate.

Head: upper surface convex, smooth, impunctate, separated from the frontal tubercles by two oblique, deeply impressed lines each extending from the middle to the back of the eye where there are a few punctures each having a fine erect hair; frontal tubercles triangular, narrowed towards the eye, smooth, impunctate; clypeus convex with the surface rounded, smooth and with a few longish erect hairs; labrum broader than long, rounded in front, with a few longish erect hairs; mandibles large; maxillary palpus slender, with the penultimate segment much longer than the apical, which is small, conical. Eyes strongly convex. Antenna extending to the apical area of elytron, thin, covered with longish hairs; first segment long, club-shaped; second and third equal; fourth longer than third, somewhat thickened towards the apex; fourth and fifth equal; the remaining segments nearly equal to one another, the last pointed. *Prothorax* quadrate, slightly narrowed towards the base; narrowly margined on all sides; front and basal margins almost straight; each side gently rounded in front of the middle, margin more reflexed in front; front angles thickened; posterior obtuse; each having a long, fine hair arising from a pore; upper surface strongly and uniformly convex, smooth, without depressions, impunctate. *Scutellum* small, sharply triangular, smooth, impunctate. *Elytra* broader at base than the prothorax; humerus prominent; smooth, confusedly covered with fine punctures, which can be seen under a high magnification. *Underside* sparsely covered with fine hairs; epipleuron broader at base, abruptly narrowed near the middle, and then very narrowly continued to the apex. Legs slender; femora thickened; hind tibia longer than either the middle or front tibia; tarsi fairly long, with the claw-segment projecting from the bilobed segment; claws appendiculate.

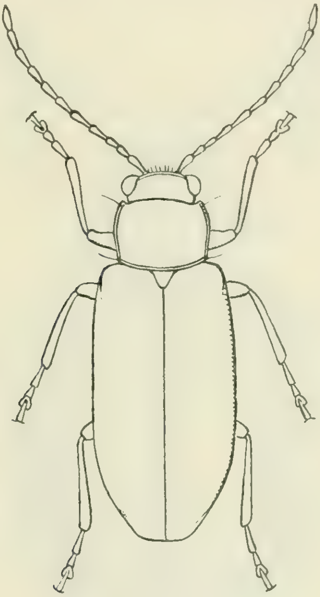

Fig. 86.—*Charæa flaviventre* Baly.

Distribution. INDIA.

137. **Charæa flaviventre** Baly.

Charæa flaviventre Baly, Cist. Ent. ii, 1878, p. 376.

Upper surface brilliant pitch-brown with purple-bluish-greenish sheen; antennæ, underside and legs red-brown without the metallic suffusion of the upper side.

Length, 3 mm.; *breadth*, 1·5 mm.

Distribution. PUNJAB: Murree.

Type in the British Museum.

Genus **PSEUDOIDES** Jacoby.

Pseudoides Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 966.

GENOTYPE, *Pseudoides bivittata* Jac.

This is a monotypic genus.

Body small, ovate. Epipleuron deeply concave at base.

Head much narrower than the prothorax ; vertex not very convex ; upper surface generally impunctate except for a few scattered faintly impressed punctures ; interocular area slightly depressed in the middle ; frontal tubercles not strongly elevated ; interantennal area broadly raised ; clypeus sharply raised ; labrum broader than long, with a slight median emargination in the front margin ; mandibles sharply pointed ; apical segment of maxillary palpus conical. Eyes strongly convex. Antenna slender, extending beyond the middle of elytron ; first segment long and club-shaped ; second shorter than third ; third, fourth and fifth almost equal in length, but fourth and fifth seem slightly stouter ;

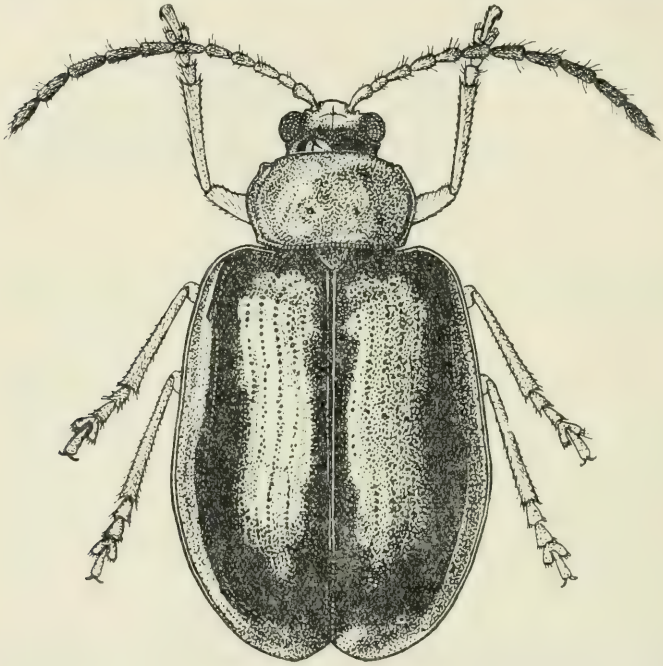

Fig. 87.—*Pseudoides bivittata* Jacoby.

sixth longer than fifth; seventh very slightly longer than sixth; seventh to eleventh almost equal, somewhat more slender, apex of eleventh pointed; hair-clothing not very thick, hairs whitish, erect. *Prothorax* somewhat broader than long; front margin straight; lateral margins widely rounded, extreme edge slightly and narrowly reflexed; posterior margin faintly sinuate; posterior lateral corners obtuse, anterior acute, each having a seta-bearing pore. Upper surface uniformly convex from side to side, almost impunctate except for a few scattered punctures only visible under a high magnification. *Scutellum* triangular, with the apex broadly rounded and surface smooth and impunctate. *Elytra* broader at base than the prothorax; humerus prominent, rounded; sides widely and uniformly curved, with the extreme edges sharply reflexed. Surface punctate, with the punctures not very closely placed and having a tendency to longitudinal arrangement which is more marked in some examples than in others; the tendency to longitudinal seriation is confined to a certain area on each side of the suture; the punctures are more strongly impressed on the basal and sutural areas than on the lateral or apical; in some examples on the lateral areas some punctures are stronger and larger than ohers. *Underside* sparsely covered with fine hairs; epipleuron broad throughout its length, concave on the basal portion, becoming vertical towards the apex; legs slender.

Distribution. INDIA.

138. **Pseudoides bivittata** Jacoby.

Pseudoides bivittata Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 966.

General colour shining light brown; four apical segments of antenna blackish, sixth and seventh dark brown but lighter than the following segments; an ill-defined large patch on the upper side of the head very dark pitch-brown, the colour becoming lighter towards the edges of the patch; suture fairly broadly dark pitch-brown; a dark pitch-brown band on the basal margin of both elytra, and in continuation with it, on each elytron, a broad stripe commencing on the humerus reaches the apical area, where, bending inwards, it meets the suture. The elytral stripe is narrow behind the humerus, slightly broadening immediately after. The edges of the pitch-brown colour are always ill defined, diffuse and lighter brown. In some examples the inner margins of the elytral stripes tend to diffuse over the middle area towards the suture, the bands becoming diffused and almost losing their connection with the elytral stripes. Scutellum always pitch-brown. Underside always light brown except the apical sternites of the abdominal segments and the metasternum, which are slightly darker.

Length, 3·5 mm. ; *breadth*, 2 mm.

Distribution. BURMA : Karen Hills, v. xii. 1888 (*L. Fea*). Toungoo, x. 1887 (*L. Fea*).

Type in the British Museum. The Genoa Museum may also claim to have the type.

The example from Toungoo shows the diffused nature of the coloured portions of the elytra.

Genus **EUMELEPTA** Jacoby.

Eumelepta Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 988 ; Mém. Soc. Ent. Belg. vii, 1900, p. 136.

GENOTYPE, *Eumelepta biplagiata* Jac.

At the time of erecting this genus Jacoby had one species before him.

Body small, ovate, slightly narrowing in front and behind, not very convex.

Head together with the eyes somewhat narrower than the breadth of the front border of the prothorax ; upper surface convex, smooth and impunctate ; just behind the point where the lateral posterior corner of frontal tubercle meets the eye-margin is a pore containing a single, fairly long hair ; frontal tubercles broad, fairly large, with the surface flattish, smooth and impunctate ; clypeus raised, smooth and with a few longish hairs ; labrum broader than long, the front margin rounded, with a slight emargination in the middle and a few longish, erect hairs on the front border ; maxillary palpus with the apical segment conical, thinner but not much shorter than the penultimate. Eyes strongly convex. Antenna short, comparatively robust, extending a little beyond the humerus ; first segment long and club-shaped ; second small ; third somewhat longer than second ; fourth equal to third in length ; fourth and fifth nearly equal ; sixth somewhat shorter than fifth ; sixth to ninth nearly equal to one another ; tenth slightly longer than ninth ; tenth and eleventh nearly equal, latter pointed at apex ; from the fourth the segments are stouter and more thickly covered with whitish hairs which are rather long and not closely packed ; apart from the four or five basal segments, under a low magnification the segments have the appearance of beads. *Prothorax* broader than long, longer in the middle than at the sides ; anterior border straight, posterior uniformly rounded or arched, slightly drawn forwards at the sides; each side gently and uniformly rounded, very finely margined; anterior lateral angles slightly thickened; posterior lateral angles obtuse; each corner with a seta-bearing pore; upper surface strongly convex, without depressions, impunctate. *Scutellum* triangular, with the apex acute and surface smooth, impunctate. *Elytra* hardly broader at base than the prothorax; somewhat broadened at the middle, then narrowing towards the apex; humerus not prominent although somewhat convex; surface fairly closely covered with fine punctures which have a tendency to arrange themselves into longitudinal series, but not sufficiently regularly to be counted; each lateral border finely margined. *Underside* sparsely covered with fine hairs; epipleuron broader at base, abruptly narrowed near the middle, then continued very narrowly to the apex. Legs short, fairly robust; femora thickened; all tibiæ nearly equal to one another; tarsi fairly long, claw-segment long, claws appendiculate.

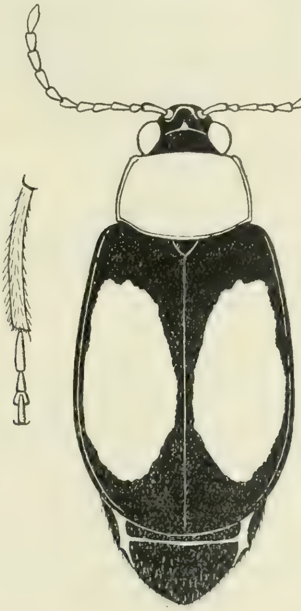

Fig. 88.—*Eumelepta biplagiata* Jacoby.
The figure on left is of hind tibia and tarsus.

Distribution. INDIA. BURMA. SUMATRA.

139. **Eumelepta biplagiata** Jacoby.

Eumelepta biplagiata Jac., Ann. Mus. Civ. Genova, xxxii, 1892 p. 988 ; Mém. Soc. Ent. Belg. vii, 1900, p. 136.

Head black, in some cases some parts, such as the frontal tubercles, diluted by pitch-brown ; mouth-parts brown, labrum pitch-brown or smoky ; three basal segments of antenna brown with smoky suffusion, rest more smoky than brown ; prothorax brown ; elytra and scutellum black slightly diluted with pitch-brown, each elytron with a longitudinally ovate patch occupying a large area extending from a point in the postbasal region nearly to the apex ; underside brown except the breast which is black, legs smoky except a certain region around the point of articulation between the femur and tibia.

In some aspects a few short, erect scattered hairs on the apical area of each elytron can be seen.

Length, 3·5 mm. ; *breadth*, 2 mm.

Distribution. BURMA : Karen Hills, i. 1888 (*Fea*). Also occurs in SUMATRA : Pangherang-pisang, x. 1890–iii. 91 (*Modigliani*). MALAY PENINSULA : Kina Balu.

Type in the British Museum.

140. **Eumelepta clypeata** Jacoby.

Eumelepta clypeata Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 135.

Head black, frontal tubercles and clypeus brown ; labrum black, other mouth-parts brown ; antenna brown with the six or seven apical segments slightly darker ; scutellum always piceous ; elytra either entirely brown or with the margins all round and the suture deep pitch-brown ; even in the lightest forms the suture is very narrowly dark, and in the most melanic forms the dark colour is very broad at the base, covering the humerus, basal margin and a large triangular area at base on either side of the suture, and then gradually narrowing along it to a postmedian point, behind which it again broadens slightly to the apex ; the lateral marginal stripe is narrow and uniform. Underside (except the breast which is black) and legs brown.

In structure it closely resembles the genotype. The difference in colour, in my opinion, may be regarded as a variation of *E. biplagiata* ; the ovate elytral patch can be recognized owing to the undulating character of the dark sutural patch, but it has attained large dimensions and here covers almost the whole of the elytral surface.

Length, 3 mm. ; *breadth*, 1·5 mm.

Distribution. BENGAL : Mandar (*Père Cardon*).

Type in the British Museum.

Genus **EUSTENA** Baly.

Eustena Baly, Cist. Ent. ii, 1879, p. 458.

Genotype, *Eustena pretiosa* Baly. Fixed by Baly.

This is a monotypic genus.

Body elongate, narrow.

Head exserted ; eyes round, entire ; frontal tubercles strongly raised. Antenna fine, filiform, with the second segment short. *Prothorax* broader than long, the upper side without sulcation. *Elytra* broader at base than the prothorax, parallel-sided, confusedly punctate. *Underside* : legs fine, long ; femora and tibiæ unarmed ; the first segment of posterior tarsi somewhat longer than the following segments together ; claws appendiculate.

Distribution. Assam.

141. **Eustena pretiosa** Baly.

Eustena pretiosa Baly, Cist. Ent. ii, 1879, p. 458.

Colour shining black ; head, prothorax and femora obscure red ; lower part of the face blackish-brown ; elytra greenish-blue. Scutellum black.

Head with the vertex smooth and impunctate. Antenna slender, rather longer than the body in the male, shorter in the female; third segment nearly three times as long as second and about a third longer than fourth. *Prothorax* twice as broad as long; sides rounded, narrowly margined and diverging from the base to the middle ; all the angles produced, hind ones acute, anterior excurved with apex obtuse ; upper side smooth and shining, feebly excavated on either side near the middle. *Scutellum* triangular. *Elytra* convex, not impressed below the basal area, rather closely and somewhat strongly punctate.

In ♂ the anal segment of the abdomen trilobate.

Length, 6·3–7·5 mm.

Distribution. Assam : from the hilly region (*A. W. Chennell*).

Type location unknown to me.

The above description is adapted from Baly's original in Latin and English.

Genus **CNEORIDES** Jacoby.

Cneorides Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 281.

Genotype, *Cneorides flaviventris* Jac.

This is a monotypic genus.

Body oblong, as broad at base as at apex which is rounded, not very convex.

Head: upper side convex, smooth, impunctate, divided from the frontal tubercles by a deeply impressed transverse curved line stretching from the posterior margin of one eye to that of the other; frontal tubercles large, not strongly raised, smooth, impunctate, with a median, impressed longitudinal line between them; clypeus with a sharp median ridge, the area on each side of which is depressed with a finely granulate surface; labrum broader than long with the front margin rounded, a few long hairs present especially on the front area; maxillary palpus long, slender, penultimate segment much longer than the apical which is conical. Eyes somewhat ovate, elongate, not strongly convex. Antenna slightly shorter than the body, area round its root excavated; four basal segments more shining, the remaining segments opaque and more hairy; first segment long and club-shaped; second very short, globular; third much longer than second, narrowed at base, gradually thickening towards the apex; the difference between the constriction of the base and the swollen condition of the apex is more marked in fourth to

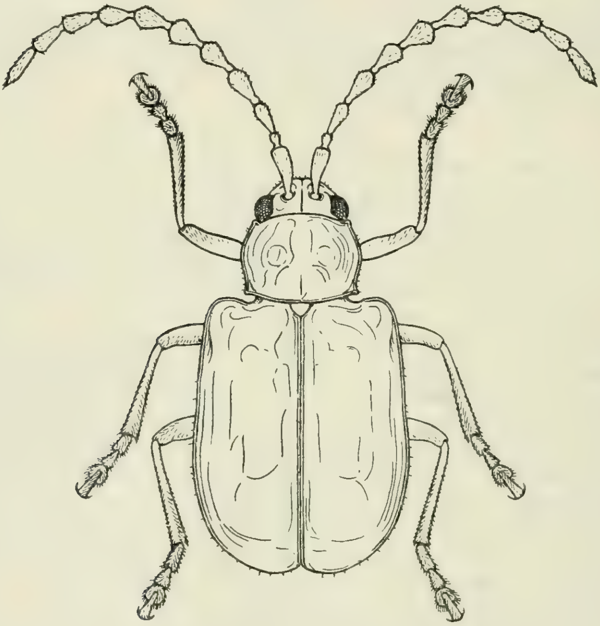

Fig. 89.—*Cneorides flaviventris* Jacoby.

ninth segments, and this gives the antenna its characteristic appearance ; fourth longer than third ; fifth somewhat shorter but thicker than fourth ; fifth to eighth nearly equal to one another ; ninth less swollen than but equal in length to the previous segments of similar structure ; tenth and eleventh more slender, equal to one another in length, the last pointed at the apex. *Prothorax* almost quadrate ; front border almost straight with the edge rounded, not margined ; posterior straight, narrowly margined ; each side convex in the middle, somewhat narrowed anteriorly and posteriorly, margins very narrowly reflexed, and bearing a few scattered, fine and horizontally directed hairs ; anterior angles thickened, posterior acute, each having a seta-bearing pore ; upper surface uniformly convex from side to side, without depressions, and finely and closely punctate. *Scutellum* triangular, with the apex rounded and the surface smooth and impunctate. *Elytra* broader at base than the prothorax ; humerus prominent, punctate ; basal area faintly convex ; surface very closely covered with fine punctures, postbasal surface slightly rugose. *Underside* fairly closely covered with longish hairs ; epipleuron almost vertical, broader at base, surface concave, becoming narrow near the middle, not continued to the apex, ending abruptly before the apical margin of elytron. Legs fairly robust ; femora thickened ; tibiæ stout, more dilated and more thickly covered with hairs towards the apex ; tarsi with the claw-segment long ; claws appendiculate.

Distribution. INDIA.

142. **Cneorides flaviventris** Jacoby.

Cneorides flaviventris Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 282.

Upper side metallic blue ; abdominal sternites dark brown, rest of the underside and legs blue mixed with dark pitch-brown ; three basal segments of antenna bright brown with a large portion of the upper surface of the first segment blackish, third segment in portions much mixed with black, much of fourth especially the apical portion and the constricted portion of fifth shining dark brown ; similarly the constricted portions of sixth, seventh, eighth shining dark brown ; underside of antenna generally lighter than the upper side.

Length, 6 mm. ; *breadth*, 3 mm. ; *length* of antenna, about 5 mm.

Distribution. NILGIRI HILLS (*H. L. Andrewes*).

Type in the British Museum.

Genus **ASTENA** Baly.

Astena Baly, Ent. Monthly Mag. ii, 1865, p. 127; Chapuis, Gen. Col. xi, 1875, pp. 186 & 190.

Genotype, *Astena atripes* Baly. Fixed by Baly.

This is a monotypic genus.

Body oblong, large, parallel-sided.

Head: upper surface convex but not strongly, smooth, impunctate; area behind the frontal tubercles depressed and with a few punctures; frontal tubercles moderately raised with the upper surface flattish; clypeus raised, impunctate; labrum broader than long with the surface smooth but having a few erect hairs on the front area; maxillary palpus much thickened towards the apex, apical segment minute, conical, imbedded in the thickened penultimate segment. Eyes strongly convex. Antenna stout, not long, extending a little beyond the humerus; fairly shining, five or six apical segments subnitid, covered but not very closely with bristly hairs; second segment very short; third twice as long as second;

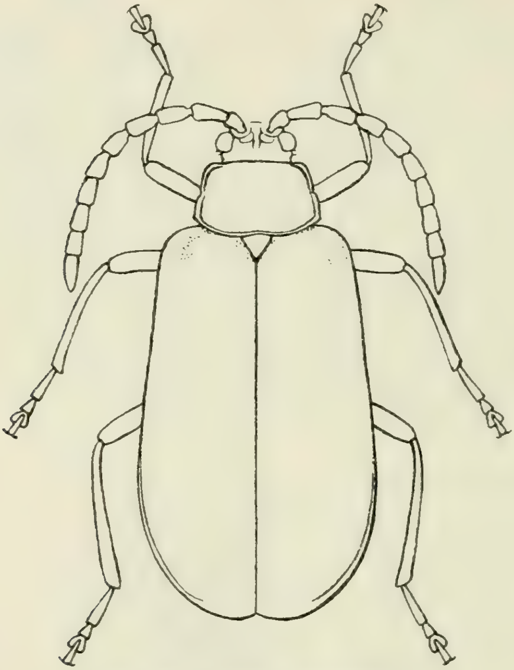

Fig. 90.—*Astena atripes* Baly.

fourth equal to third; fifth shorter than fourth; sixth shorter than fifth; sixth and seventh equal; from the eighth to eleventh the segments are somewhat thinner and equal to one another, last sharply pointed at the apex. *Prothorax* broader than long; front margin almost straight; posterior with a small emargination in the middle and bisinuate on each side; each side wavy with the margin broadly reflexed; anterior angles thickened, posterior obtuse, each having a seta-bearing pore; surface uniformly convex from side to side, smooth, seen under a high magnification sparsely covered with punctures, and the background finely shagreened. *Scutellum* large, triangular with the apex acute, and the surface smooth and impunctate. *Elytra* broader at base than the prothorax; humerus prominent, overhanging on each side, below it surface deeply concave; a fairly large basal area on each side of scutellum gently convex; seen under a high magnification surface sparsely covered with a mixture of finer and coarser punctures. *Underside* fairly thickly covered with longish hairs, those on the legs bristly; epipleuron broader at base, then somewhat narrowed and continued more narrowly towards the apex where it disappears altogether. Legs robust; femora and tibiæ stout; tarsi long, first segment of posterior tarsus longer than the corresponding segments of front or middle tarsus; claw-segment projecting beyond the bilobed segment but not to a great extent; claws appendiculate.

Distribution. INDIA.

143. **Astena atripes** Baly.

Astena atripes Baly, Ent. Monthly Mag. ii, 1865, p. 128.

Almost completely brown with the mouth-parts, antennæ and legs including coxæ black.

Length, 10 mm.; *breadth*, 5·25 mm.

Distribution. INDIA.

No other particulars are available.

Type in the British Museum.

Genus **LIROETIS** Weise.

Liroetis Ws., Horæ Soc. Ent. Ross. xxiii, 1889, p. 607.
Liroetes Jacoby, Entomologist, xxiii, 1890, p. 215.

GENOTYPE, *Liroetis æneipennis* Ws. (China).

While erecting the genus Weise had one species before him. Body elongate, parallel-sided with the apex bluntly rounded. *Head* with the vertex not very convex, smooth, usually only faintly but sometimes distinctly punctate, frontal tubercles large, somewhat triangular in shape, flattish, surface finely wrinkled near the edges, with no actual division between them although there is a fine darker longitudinal line ; clypeus broadly raised with the surface finely punctate ; labrum large, broader than long, with front edge rounded and with a slight emargination in the middle ; all these parts with a few scattered hairs ; maxillary palpus much thickened towards the apex, apical segment short, conical and imbedded in the penultimate segment. Eyes strongly convex. Antenna slender, extending to about the middle of elytron or a little longer, somewhat more slender towards the apex ; sparsely covered with fine hairs ; first segment long and club-shaped ; second small ; third longer than second ; fourth much longer than third ; fifth almost equal to fourth ; sixth slightly shorter than fifth ; from the sixth the segments are nearly equal to one another, last sometimes very long, bluntly pointed at the apex. *Prothorax* broader than long ; front margin slightly emarginate in the middle ; posterior margin gently sinuate in the middle, lateral portions somewhat drawn forwards ;

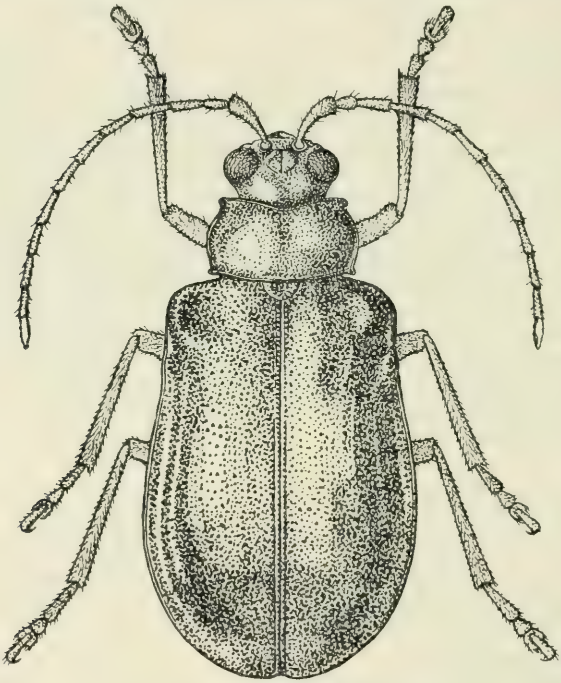

Fig. 91.—*Liroetis apicicornis* Jacoby.

each side straighter towards the base, and before the middle abruptly rounded inwards towards the anterior lateral angles, margins slightly reflexed ; each corner with a seta-bearing pore, anterior angles somewhat thickened ; upper surface uniformly convex from side to side without any depressions at all. *Scutellum* broadish, triangular, with the apex rounded and the surface impunctate. *Elytra* broader at base than the prothorax ; humerus raised but not strongly prominent, punctate ; confusedly and fairly closely covered with minute, fine punctures. *Underside* sparsely covered with fine hairs ; epipleuron broader at base, concave, very narrowly continued to the apex. Legs robust ; femora and tibiæ more thickly covered with hairs ; posterior tarsus longer than either the front or the middle ; first segment of posterior tarsus longer than the following segments together ; claw-segment not extending much beyond the bilobed segment ; claws appendiculate.

Distribution. INDIA. CHINA.

In drawing up the above generic description the Indian species has been given more importance, although I have also taken notice of species from China in the collection of the British Museum.

144. **Liroetis apicicornis** Jacoby.

Liroetes apicicornis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 282.

Entirely shining brown. The last segment of antenna very long, black.

Length, 10 mm. ; *breadth*, 4·5 mm.

Distribution. BOMBAY : Kanara.

Type in the British Museum.

All characters given in the generic description apply to this species.

Genus **MILTINA** Chapuis.

Miltina Chap., Gen. Col. xi, 1875, p. 172 ; Jacoby, Ann. Mus. Civ. Genova, xli, 1904 (05), p. 513 ; Weise, Tijdschr. Ent. lxv, 1922, p. 99.

GENOTYPE, *Miltina dilatata* Chap. (Malacca, Sumatra, Tonking).

This is a monotypic genus.

Body generally plump, widened posteriorly, slightly constricted behind the shoulders ; males of the same form but somewhat smaller.

Head narrower than the greatest width of the pronotum, fitting completely into the emargination of the front margin of the prothorax ; vertex convex and with a very fine faintly impressed median longitudinal line ; frontal tubercles raised, with a deep division between, and separated from the area behind by a deeply impressed line ; clypeus broad, raised and sparsely covered with longish hairs ; labrum broader than long, with a small emargination in the middle and covered by longish stiff hairs which are thicker on the margins ; maxillary palpus considerably thickened towards the apex, the apical segment being imbedded in the penultimate one and having in the middle of its nearly flat surface some organs, apparently sensory ; the structure of this palpus is remarkable. Eyes strongly convex. Antenna in the female extending a little beyond the shoulder, in the male slightly longer ; first segment long, club-shaped ; second very small, almost globular ; third in the male somewhat longer than second, in the female about twice as long ; in the female fourth longer than third and somewhat thicker towards the apex ; from the fifth the segments are somewhat flattened and slightly produced at inner apical angle up to the tenth ; eleventh with the apex bluntly conical ; fifth shorter than fourth ; sixth shorter than fifth ; sixth to ninth nearly equal to one another ; tenth slightly shorter than ninth ; eleventh with the conical apex appears to be somewhat longer than the tenth or ninth ; in the male a fairly long projection on the inner apical part of each segment from fourth to tenth ; fifth shorter than fourth ; fifth to tenth equal to one another ; eleventh flattened without any projection, longer than tenth, and with the apex bluntly narrowed ; three basal segments more shining and sparsely covered with a few hairs, remaining segment opaque or subnitid and more thickly covered with short hairs. *Prothorax* a little more than twice as broad as long, front border emarginate, posterior gently and widely rounded, but towards the sides more abruptly drawn

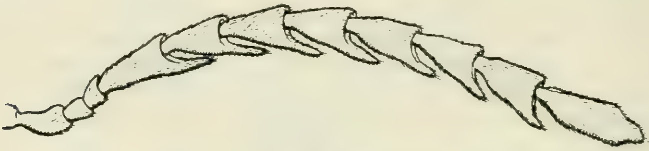

Fig. 92.—Right antenna of *Miltina dilatata* Chap., ♂.

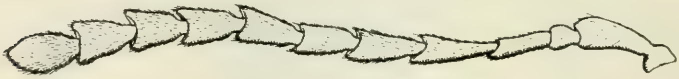

Fig. 93.—Right antenna of *Miltina dilatata* Chap., ♀.

forwards ; from the point where this happens the margin is reflexed and continues so into the rather widely reflexed lateral margin ; posterior lateral angles obtuse ; lateral margin very gently rounded ; the reflexed margin continued round anterior lateral angles where the margin is somewhat more expanded ; the seta-bearing pores at each of the four corners small and situated on the edge ; upper surface uniformly but not strongly convex from side to side, without any depression of any kind, sparsely covered with minute punctures. *Scutellum* fairly large, triangular with the apex rounded ; the surface smooth, impunctate. *Elytra* broader at base than the prothorax ; shoulders raised, prominent, not quite free from the general punctation of the elytral surface ; behind and below the shoulder on each side the lateral surface depressed or concave ; each lateral margin gently reflexed ; upper surface fairly closely, uniformly and confusedly covered with punctures ; these latter well impressed, small, fine, but larger than those of pronotum. *Underside* sparsely covered with fine hairs ; epipleuron broader at base, but continued narrowly to the apex, its surface containing some strong punctures ; legs robust, femora somewhat thickened, tibiæ

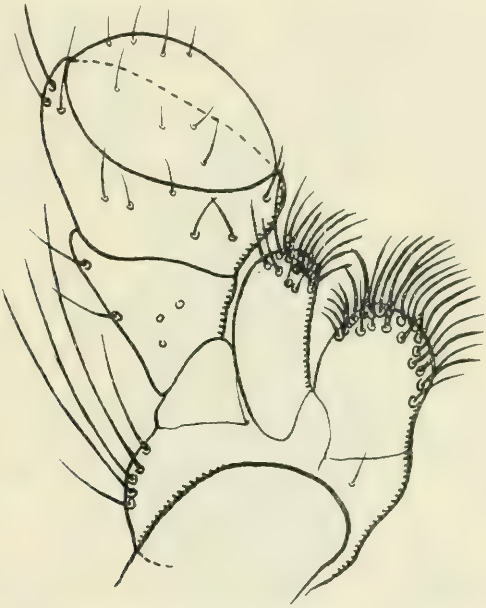

Fig. 94.—Maxilla of *Miltina dilatata* Chap. Note the form of the apical segment of the palpus.

more thickly covered with stiff hairs, posterior tibia slightly longer than either the front or middle, tarsi broad, claws strong, appendiculate.

Distribution. INDIA. BURMA. MALACCA. SUMATRA. TONKING.

145. **Miltina dilatata** Chapuis.

Miltina dilatata Chap., Gen. Col. xi, 1875, p. 173, pl. 125, fig. 2; Jacoby, Notes Leyd. Mus. vi, 1884, p. 42; Weise, Tijdschr. Ent. lxv, 1922, p. 99.
Bonesia balyi Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 206.

General colour shining brown, underside paler than upper; the upper side varies from a pale brown to red-brown; legs sometimes black, but sometimes the tibiæ and tarsi only are black, the femora sharing the colour of the underside; in some cases the abdominal sternites are darker.

Length of largest female, 11·5 mm.; *breadth* across the hind part of the body, 7·5 mm.; *length* of male, 7·5 mm.; *breadth,* 5 mm.

Type of *dilatata* unknown to me.

Type of *Bonesia balyi* in the Genoa Museum.

I have no doubt that *M. dilatata* is a widely distributed species, having before me numerous examples from many localities. Jacoby described *balyi* from a single male specimen collected by Fea from Teinzo, May 1886, and he doubtfully placed it in an African genus.

Distribution. SIKKIM: Mungpu. ASSAM: Manipur (*Doherty*). Patkai Mts. (*Doherty*).

It also occurs in TONKING, MALACCA and SUMATRA.

Genus **MORPHOSPHÆRA** Baly.

Morphosphæra Baly, Journ. of Ent. i, 4, 1861, p. 298; Chapuis, Gen. Col. xi, 1875, pp. 167 & 170; Allard, Comptes-Rendus Soc. Ent. Belg. xxxiii, 1889, p. lxvii.

GENOTYPE, *Chrysomela japonica* Hornstedt (1788)=*Adorium japonica* Baly (1874)=*Morphosphæra maculicollis* Baly (1861). The correct name of the genotype is therefore *Morphosphæra japonica* Hornst.

Body ovate, broadish, convex; elytra with metallic coloration, very often with metallic sheen.

Head broad, large, fitting closely in the wide emargination of the front border of the prothorax; upper side gently convex, finely punctate; area behind the frontal tubercles depressed; frontal tubercles not strongly raised and not having a channel between; clypeus broadly raised, with the surface very closely and minutely punctate; labrum broader than long with front margin widely rounded; all these parts sparsely covered with straight, fine hairs. Eyes large, strongly convex. Antenna not very slender, extending a little beyond the shoulders; first three segments with very few hairs, shining; first segment long and club-shaped; second and third short, latter very often slightly longer than former. *Prothorax* much broader than long, gently convex from side to side without any depression or sulcation; very finely punctate; front border widely emarginate; sides very slightly rounded with the margin very slightly reflexed; posterior margin widely rounded so that the lateral portion on each side is drawn forwards; anterior angles somewhat thickened, acute and somewhat drawn forwards; posterior angles a little wider than right angles; each corner with a seta-bearing pore. *Scutellum* sharply triangular with the apex very acute, the surface smooth, impunctate. *Elytra* hardly broader at base than the prothorax; shoulders convex but not strongly, punctate; upper surface convex about the middle, confusedly, uniformly and fairly closely punctate; the punctures may be more sparsely distributed and finer than they are in the type-species, but in all cases the elytral punctures are stronger than those of the pronotum. *Underside*: covered with greyish hairs; epipleuron broader at base, abruptly narrowed at the middle and very narrowly continued

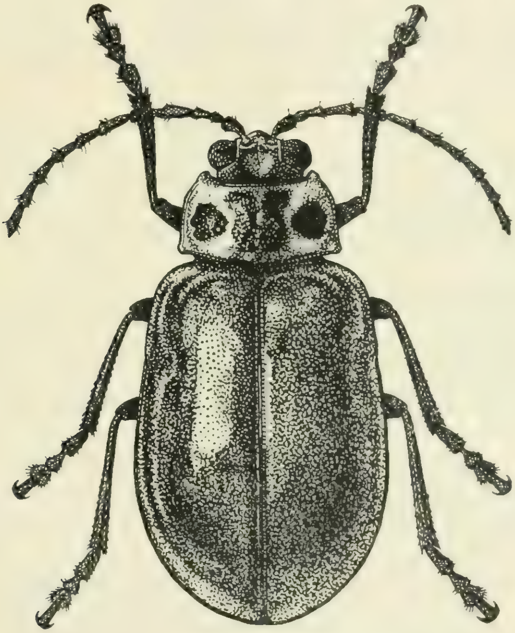

Fig. 95.—*Morphosphæra montivaga* sp. nov.

to the apex. Legs robust, tibiæ fairly stout, more thickly covered with hairs, each with the upper side bearing a fine longitudinal median ridge; tarsi long, claws appendiculate.

Distribution. India. Burma. China. Japan.

Key to the Species.

1. Pronotum with four or five round spots; elytra and scutellum shining blue, or as a variety pitch-brown with a metallic sheen; 7·0–9·0 × 5·5 mm.	*M. japonica* Hornst., [p. 318.
No such combination of characters	2.
2. Pronotum with large diffused longitudinal median and two lateral patches; elytra and scutellum pitch-brown with a metallic sheen; 9·5–10·5 × 5·5 mm.	*M. montivaga* sp. n., [p. 319.
No such combination of characters	3.
3. Pronotum with four or five round black spots; elytra brown with a metallic sheen, scutellum red-brown; 5·5–7·0 × 3·5–4·5 mm.	*M. prava* sp. n., p. 320.
Pronotum with seven round black spots; elytra brown without any metallic sheen, scutellum black; 6·5 × 4·5 mm.	*M. brunnea* sp. n., [p. 321.

146. **Morphosphæra japonica** Hornstedt.

Chrysomela japonica Hornst., Schrift. Ges. Naturf. Freunde Berl. ii, 1788, p. 1, t. 1, f. 1.

Morphosphæra maculicollis Baly, Journ. of Ent. i, 4, 1861, p. 298; Allard, l. c., *supra*.

Adorium japonicum Baly, Trans. Ent. Soc. Lond. 1874, p. 176; Harold, Col. Hefte, xiv, 1875.

Elytra and scutellum shining blue; prothorax shining yellowish-brown to reddish-brown, with four round black spots arranged in a transverse line which is not quite straight, two on each side of the longitudinal median line, the inner spots somewhat smaller than the outer, in some cases the middle portion of the posterior margin smoky and with a round spot in front touching the smoky area; in some examples the smoky area is considerably reduced although the spot remains, on the other hand the spot may disappear while the smoky area remains prominent. These variations are seen in Chinese and Japanese but not in Indian examples; head black, labrum black to brown in varying degrees; antenna black, points of articulation of three basal segments sometimes mixed with brown; underside and legs black, often with brownish admixture, especially on the edges of the abdominal sternites.

Head: fourth segment of antenna always longer than third; latter in relation to second varies slightly; from fourth to end segments somewhat thickened, and nearly equal to one another, the last bluntly pointed. *Prothorax*: punctation on the shining surface of the pronotum very minute and sparse, sometimes somewhat closer and more numerous. *Elytra*: punctures small, not very deeply impressed, fairly closely placed.

Length, 7·0–9·0 mm.; *breadth*, 4·5–6·0 mm. Examples from Assam: *length*, 8·5 mm.; *breadth*, 5·5 mm.

In describing *maculicollis* Baly only recorded "India" as the locality.

Distribution. ASSAM (*W. F. Badgley*, Brit. Mus.). Also occurs in AMUR, CHINA, JAPAN. G. Lewis records that in Japan this species feeds on a small clinging fig growing in shady places.

Baly's *types* in the British Museum. The location of Hornstedt's type unknown to me.

Variation.

In this variety the elytra have become pitch-brown with a bluish-violet sheen. The margins of the elytra are darker, indicating that the shining blue of the typical examples has become obscured in the variation by the darker colour diffusing inwards; in some of the Chinese specimens an approach to this condition can be recognized. On the pronotum, besides the four rounded spots in a transverse line, the spot in front of the middle of the basal margin is always present but the darker shade of this portion is absent. The general colour of the pronotum is a lighter shade of brown.

Length, 8·5 mm.; *breadth*, 5·5 mm.

Distribution. WESTERN HIMALAYAS: Kumaon, Almora, 7,000–9,000 ft., vi. 1917; Naini Tal, ix. 1917 (*H. G. Champion*). Four examples, one from Naini Tal and three from Almora.

147. **Morphosphæra montivaga** sp. nov.

Body oblong, somewhat more elongate than *M. japonica*, shining; elytra and scutellum pitch-brown with a bluish-violet sheen; prothorax light brown with three black patches, a median and two lateral, the median patch occupies a large central longitudinal area from the front margin towards the base but not quite reaching the margin, and is surrounded by an ill-defined reddish border which is probably a dilution of the black area, the lateral patch large and almost circular in outline; head and antennæ black; underside and legs pitch-brown, abdominal sternites blackish with the edges light brown.

Head: a few scattered, extremely minute punctures on the upper surface, more crowded in the concavity behind the frontal tubercles; third segment of antenna slightly longer than second; fourth longer than third; fifth almost equal to fourth; from the fifth to the last the segments are nearly equal to one another, the last conically pointed at the apex. *Prothorax* with surface with minute, scattered punctures, in addition to which are still more minute and more crowded punctures; these latter are not present over the middle portions of the median and lateral black areas. *Elytra* scatteredly and confusedly punctate, the punctures being minute and not strongly impressed.

Length, 9·5–10·5 mm.; *breadth*, 5·5 mm.

Distribution. DARJEELING. MANIPUR (*Doherty*).

Type in the British Museum.

Described from three examples.

148. **Morphosphæra prava** sp. nov.

Smaller and less convex than *M. japonica*, much smaller than *M. montivaga*, and more ovate and slightly more elongate than *M. brunnea*. Elytra brown with a metallic bluish-greenish-violet sheen, in one example the bluish-green colour predominates; in all cases scutellum red-brown; prothorax brown to dark red-brown with five round black spots on the upper surface, four in a transverse line and one in the middle of the basal area, this latter spot is sometimes obsolescent and is absent in the example in which the blue-green colour predominates; head red-brown, antennæ black except the two or three basal segments which are red-brown; underside and femora red-brown, tibiæ and tarsi black.

Head with upper surface impunctate; frontal tubercles considerably flattened; sometimes the depression behind them very shallow and containing obsolete punctures. Antenna extending to nearly the middle of elytron; third segment slightly longer than second; fourth longer than third; following segments are nearly equal to one another, last bluntly pointed. *Prothorax* very minutely and obsoletely punctate; the punctation of the pronotum varies to a slight extent, in some examples the punctures can be seen distinctly and in others they are obsolescent. *Elytra* confusedly and fairly closely punctate, the punctures being distinct and well-impressed. The punctation is stronger than that of *M. montivaga*, but of a similar character to that of *M. japonica* or of *M. brunnea*.

Length, 5·5–7 mm.; *breadth*, 3·5–4·5 mm.

Distribution. ASSAM: Manipur (*Doherty*). BURMA: Ruby Mines (*Doherty*).

Type in the British Museum.

Described from ten examples, one from Burma and nine from Manipur.

149. **Morphosphæra brunnea** sp. nov.

Oblong, not so convex as *M. japonica* and shorter than either *M. japonica* or *M. montivaga.* Elytra brown without any metallic sheen, scutellum black, prothorax pale brown with seven round black spots on the upper surface arranged as follows :—On the central area three in a triangle, two in front and the third (smaller) behind them towards the base, and two on each lateral area the inner ones being larger ; these latter are the largest of all, and appear to be placed nearer the basal margin than is the case with corresponding spots in other species. Head reddish mixed with black, indicating that it is generally black but that in this example a large part of the black has been diluted. Antennæ black with the first two segments pitch-brown, last segment brown ; underside and legs black.

Head with the vertex impunctate. Third segment of antenna slightly longer than second ; fourth longer than third ; fourth and fifth nearly equal ; from the fifth to the last the segments are nearly equal to one another, last conically pointed. *Prothorax* with the upper surface impunctate. *Elytra* closely and confusedly punctate ; the punctures are thicker and more strongly impressed than those of either *M. japonica* or *M. montivaga.*

Length, 6·5 mm. ; *breadth,* 4·5 mm.

Distribution. Burma : Tavoy, Tenasserim (*Doherty*).

Type in the British Museum.

Described from one example.

In 1886 Jacoby (Ann. Mus. Civ. Genova, xxiv, p. 60) described under this genus a species to which he gave the name *sumatrana*, and to this species he (idem. xxvii, 1889, p. 207) has referred a specimen taken at Teinzo, Bhamo, Burma (March–July), by Fea. This specimen has seven spots on the pronotum, and Jacoby states that, apart from this, he can find no other character by which to differentiate it from *sumatrana.* Had he the opportunity of observing it under a microscope he would in all probability have found some structural differences.

Genus **BIJUKTA** gen. nov.

Genotype, *Malacosoma flaviventre* Baly.

This genus is at present monotypic : it is erected for the following species, removed from *Exosoma* Jac., an African genus, for reasons stated below.

Body oblong, narrowed towards the apex, humerus abruptly raised, a certain large basal area of elytron gently convex.

Head: upper side convex, smooth, impunctate, sloping down in front, divided from frontal tubercles by two transverse semilunate impressions; frontal tubercles broadish, raised, almost triangular, smooth, impunctate, with a median longitudinal impressed line between them; clypeus large, generally convex, impunctate except for a few punctures near its base; labrum broader than long, slightly convex, with four or five

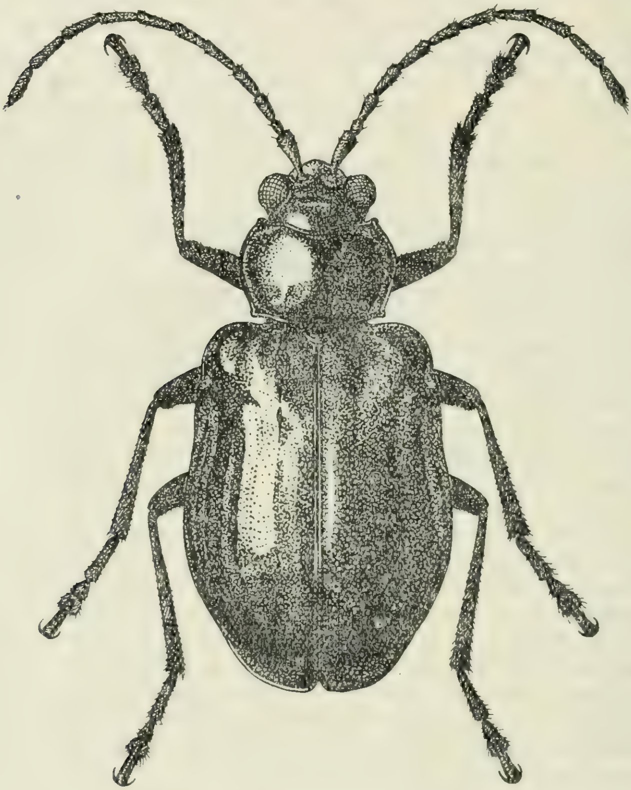

Fig. 96.—*Bijukta flaviventre* (Baly).

long, fine hairs, front margin rounded; maxillary palpus with the last segment oblong-ovate and almost as long as the penultimate. Eyes strongly convex. Antenna slender, extending nearly to the middle of elytron; first three segments shining, with a few scattered hairs, remaining segments thickly covered with greyish hairs; first segment long and club-shaped; second short; third longer than second; fourth longer and thicker than third; fifth nearly equal to fourth;

from the fifth to the end the segments are nearly equal to one another; last bluntly pointed. *Prothorax* quadrate in appearance, but actually slightly broader than long; front margin gently emarginate; posterior very slightly emarginate in the middle, otherwise almost straight; anterior and posterior borders narrowly margined; sides evenly and slightly rounded, margins reflexed; anterior lateral angles rounded, posterior acute; each of these corners with a seta-bearing pore; upper surface uniformly convex from side to side, without any depressions, covered fairly closely with minute punctures. *Scutellum* broadish, triangular with the apex rounded, and with the surface finely shagreened. *Elytra* broader at base than the prothorax; lateral edges margined; surface covered fairly closely with minute punctures; along the lateral area and continued to the apical area a few scattered erect hairs; seen in certain angles faint longitudinal ridges along each elytron. *Underside* very sparsely covered with fine hairs; epipleuron fairly broad, concave, abruptly narrowed near the beginning of the apical portion and not continued right to the apex. Legs moderately long; femora thickened; tibiæ narrower towards the base and somewhat thicker near the apex, posterior somewhat longer; tarsi long, first segment of the posterior tarsus longer than the corresponding segment of the other tarsi, claw-segment long, projecting much beyond the bilobed segment which is somewhat reduced, claws appendiculate.

Distribution. INDIA.

150. **Bijukta flaviventre** (Baly).

Malacosoma flaviventre Baly, Cist. Ent. ii, 1878, p. 379; Second Yarkand Miss. 1878, p. 33; Duvivier, Comptes-Rendus Soc. Ent. Belg. xxviii, 1884, p. cccxiv.

Upper side blue-green, either of these colours may predominate: antennæ blackish; underside, except the abdominal sternites, similarly coloured as the upper side but with some admixture of black; abdominal sternites bright rich brown or somewhat lighter; the insect is shining but not brilliant.

Length, 7 mm.; *breadth*, 4 mm.

Distribution. PUNJAB: Murree.

This species differs from the type-species of *Exosoma* in having (1) antennae of a different structure, (2) the humerus more abruptly raised, and (3) the basal area of elytra gently convex. In *Exosoma* each of the segments of antenna from the third to seventh is narrowed at the base and somewhat expanded towards the apex, a feature which is absent in *flaviventre*. The distribution of *Exosoma* does not lend support to the idea of *flaviventre* being included in it.

Genus **EMATHEA** Baly.

Emathea Baly, Ent. Monthly Mag. ii, 1865, p. 147 ; Chapuis, Gen. Col. xi, 1875, p. 234.

Genotype, *Emathea æneipennis* Baly (Sumatra). Fixed by Baly.

Body rather broad, ovate, convex.

Head broad, completely enclosed in the front emargination of the prothorax ; vertex convex, then sloping down in front, with the surface impunctate or with faint obsolete punctures ; deeply depressed behind the frontal tubercles ; these latter hardly raised, surface flattish and impunctate ; clypeus broadly raised, impunctate ; labrum broader than long, rounded in front, and with a few fine erect hairs ; maxillary palpus long, slender, apical segment conical, not shorter than the penultimate segment. Eyes convex. Antenna slender, extending to the middle of elytron or a little beyond ; two or three basal segments smooth, shining, almost without hairs, remaining segments fairly thickly covered with hairs ; first segment long, club-shaped ; second very small ; third twice as long as second. *Prothorax* much broader than long ; anterior margin widely emarginate ; posterior uniformly and widely rounded ; each side gently rounded with the margin

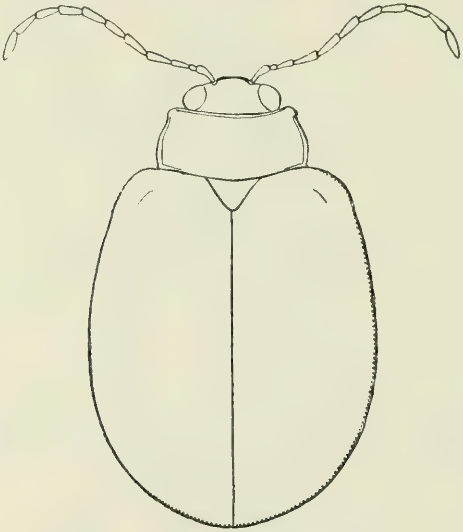

Fig. 97.—*Emathea violaceipennis* Baly.

reflexed ; margin at each anterior lateral angle broadened, concave, slightly drawn forwards ; posterior lateral angle obtuse ; at each corner a long, fine seta arising from a pore ; upper surface uniformly curved from side to side but not markedly raised, without any depression, very sparsely covered with extremely fine punctures. *Scutellum* triangular with the apex rounded and the surface faintly convex, smooth, impunctate. *Elytra* much broader at base than the prothorax, gradually widening behind, then narrowing somewhat towards the apex ; each side narrowly margined ; humerus strongly convex ; a fairly large basal area distinctly but not strongly convex ; surface fairly closely, and confusedly, covered with fine well-impressed punctures. *Underside* very sparsely covered with fine hairs, comparatively more numerous on abdominal sternites, and much more numerous and coarser on tibiæ ; epipleuron much broader at base, concave, abruptly narrowed at the middle, then continued extremely narrowly to the apex. Legs fairly robust ; tibiæ and tarsi not very long ; claws appendiculate.

Distribution. BURMA. MALAY PENINSULA. SUMATRA.

151. **Emathea violaceipennis** Baly.

Emathea violaceipennis Baly, Ent. Monthly Mag. (2), i, 1890, p. 12.

Body shining. Elytra deep violet, much mixed in the type-example with black, scutellum deep blue-black even in violet examples ; head, prothorax, two basal segments of antenna, underside and femora brown to deep rich brown ; third to eighth segments of antenna, tibiæ and tarsi blackish ; last three segments of antenna light brown.

Head : in the antenna the segments from the fourth to the eighth are slightly thickened ; fourth slightly longer than third ; fifth thicker but somewhat shorter than fourth ; sixth nearly equal to fifth ; from the sixth to the end the segments are nearly equal to one another ; the last sharply pointed at apex ; the last three light brown segments appear to be somewhat thinner.

Length, 7 mm. ; *breadth*, 5 mm.

Distribution. BURMA. Also occurs in SUMATRA, Soekaranda (*Dohrn*).

Type in the British Museum.

Genus **AGELASTICA** Redtenbacher.

Agelastica Redtb., Gatt. deutsch. Käferf. 1845, p. 114; Fauna Austr. 1849, p. 525; l. c., ed. 3, ii, 1874, p. 491; Joannis, Abeille, iii, 1866, pp. 7, 107; Thomas, Skand. Col. viii, 1866, p. 108; Fairmaire, Gen. Col. d'Eur. iv, 1868, p. 240; Chapuis, Gen. Col. xi, 1875, p. 168; Seidlitz, Fauna Balt. 1875, p. 134; l. c., ed. 2, 1891, p. 176; Fauna Transs. 1891, p. 176; Weise, Ins. Deutschl. vi, 4, 1886, pp. 576, 579; Fowler, Col. Brit. Is. iv, 1890, p. 322; Bedel, Col. Bass. Seine, v, 1893, pp. 157, 159; Everts, Col. Neerl. ii, 1903, p. 450; Reitter, Fauna Germ. iv, 1912, pp. 135, 140.

GENOTYPE, *Chrysomela alni* Linn.

Oblong, somewhat broadened behind, parallel-sided with the apex slightly narrowed. General colour metallic deep blue, sometimes with a violet sheen; underside less blue than the upper side; antennæ and legs black.

Head together with the eyes somewhat narrower than the prothorax; upper surface convex, closely punctate; depression behind the frontal tubercles large, occupying a good portion of the front of the head; frontal tubercles large, impunctate, fairly well developed; interantennal ridge broad, punctate; clypeus broadly raised with the surface punctate and sparsely covered with a few hairs; labrum broader than long with the surface somewhat convex and with a slight emargination in the middle of the front margin; maxillary palpus moderately long with the apical segment long and pointed. Eyes not very strongly convex. Antenna robust, extending nearly to the middle of elytron but sometimes slightly shorter; first segment long and club-shaped; second and third short, almost equal, third sometimes longer than second; these three segments shining and with a few scattered hairs, remaining segments more thickly covered with greyish hairs; fourth longer than third; fifth shorter than fourth; sixth to eleventh nearly equal to one another, last pointed at the apex. In the relative lengths and thickness of the antennal segments a slight variation is sometimes seen, but, in my opinion, this is not of such a nature as to justify the erection of a new species. *Prothorax* broader than long; basal margin uniformly rounded from one side to the other; sides also regularly rounded and in continuation of the curve of the basal margin; lateral margin reflexed with the edge sharp; posterior lateral angles widely rounded; anterior lateral angles acute, rounded, somewhat thickened, in the Japanese examples they are more drawn forward with the angles turned outwards; upper surface uniformly convex from side to side without any depression or sulcation, and confusedly and closely punctate. *Scutellum* sharply triangular, impunctate. *Elytra* broader than the prothorax; shoulders raised but not very prominently, punctate; each lateral margin gently reflexed ; somewhat behind the shoulders near the margin is a concave area ; sometimes an upper basal area faintly raised ; upper surface closely and confusedly punctate. *Underside* sparsely covered with whitish hairs, tibiæ and tarsi more thickly covered ; epipleuron broader at base, gradually narrowing and continued to the apex, with the surface concave. Legs neither slender nor very robust ; tibia with a fine ridge along the middle of the upper side and an apical spine, hind tibia somewhat longer than either the front or middle ; sometimes the tibiæ, especially the middle and hind ones, appear somewhat curved ; tarsi long, claws appendiculate.

Distribution. See remarks under the species.

152. **Agelastica alni** (Linnæus).

Chrysomela alni Linn., Syst. Nat. ed. 10, 1758, p. 369 ; Fauna Suec. 1761, p. 511 *.

General colour metallic deep blue which is neither very shining nor very dull, sometimes with a violet sheen ; underside less blue than the upper side ; antennæ and legs black.

Length, 7·5 mm. ; *breadth*, 4 mm.

Geographical distribution. From this point of view this is a very interesting species. It occurs throughout the continent of Europe. It has been taken only once or twice in the British Isles, probably owing to accidental introduction. It spreads eastward through the Transcaucasian region, Persia, Afganistan, Turkestan and China to Japan. Several examples were taken by the Yarkand Expedition at Sanju, Sin-Kiang, China, 16,483 ft. It has, however, not yet been taken within our faunistic limits, although I believe it will be found on the Himalayan ranges. In order to draw attention to this fact I have included this species in this work. Other Palæarctic species have been found in the Himalayas, for example, *Chrysomela populi* Linn., which occurs in the Punjab and also in Tibet (see my work on CHRYSOMELINÆ in this series, 1926, p. 69), spreading through China to Japan.

Variation. Although this species has such a wide distribution it appears to have undergone very little variation. Among the specimens in the collection of the British Museum those from Turkestan and from Sanju are more parallel-sided narrowing towards the apex ; those from Japan are oblong broadening somewhat behind ; and those from other parts are intermediate. Some examples from Europe and Persia are quite small.

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* For fuller references see 'Coleopterorum Catalogus' (Junk & Schenkling), Weise, Chrysomelidæ, Galerucinæ, lxxviii, 1924 .p. 130.

Genus **TAPHINELLA** Jacoby.

Taphinella Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 224; Mém. Soc. Ent. Belg. vii, 1900, p. 140; Fasc. Malay., App. ii, 1905, p. 5.

GENOTYPE, *Taphinella nigripennis* Jac.

At the time of erecting the genus Jacoby had one species before him.

Body oblong, parallel-sided with the apex rounded.

Head with the upper side convex, impunctate; separated from the frontal tubercles by a deeply impressed, transverse and somewhat curved line which terminates on either side at the eye; frontal tubercles narrow, obliquely extending to the eyes, surface convex and impunctate; clypeus strongly convex, sharply raised between the antennæ, smooth, impunctate; labrum broader than long, upper surface flat, front margin rounded, slightly emarginate in the middle and with a few erect, fine hairs in front; apical segment of maxillary palpus conical, not shorter than the penultimate segment. Eyes strongly convex, somewhat constricted round the base. Antenna in the female extending to the basal area of elytron, in the male to the apical area; first segment club-shaped but more slender in the female than in the male; second small but slightly longer than that of the male; third longer than second but in the male very minute, and smaller than second; from the fourth the segments are thickened in the female but more especially modified in the male; in the female fourth segment longer than third and narrower at base than at apex; fifth of similar structure but shorter than fourth; sixth similar and equal to fifth; seventh to the end similar and nearly equal to one another; seen from the underside these segments appear to be broader than when seen from the upper side: in the male fourth longer than fifth and conically widened towards the apex; fifth similar but somewhat flatter and faintly concave on the underside near the apex; fifth to eighth similar and nearly equal to one another; ninth flatter and narrower than eighth; tenth thinner and narrower than ninth but equally flat; eleventh slender, almost cylindrical, with the apex pointed, and nearly equal to tenth in length. *Prothorax* broader than long with the upper surface fairly strongly and uniformly convex from side to side, without any depressions, and very sparsely covered with extremely minute but distinct punctures; anterior and posterior margins uniformly curved without any undulations; each side gently curved; all borders narrowly margined; anterior lateral angles slightly thickened and produced; posterior angles obtuse; each of the four corners with a fine seta arising from a pore. *Scutellum* rather small, triangular with the apex rounded and the surface smooth and impunctate. *Elytra* slightly broader at base than the prothorax; humerus prominent with its surface very sparsely covered with very minute punctures, on their inner sides towards the scutellum a deep sulcation; basal area convex; confusedly and closely covered with well-impressed but fine punctures, in which in some aspects a tendency towards longitudinal seriation is recognizable. *Underside* sparsely covered with fine hairs; epipleuron much broader at base, abruptly narrowed at the middle and then very narrowly continued to the apex. Legs not very long, fairly slender; femur of hind leg much longer than that of either the front or middle leg; all tibiæ equally slender and nearly equal to one another in length, hind tibia slightly curved; first segment of posterior tarsus longer than the corresponding segments of the other tarsi; claws appendiculate.

Distribution. BURMA. CHINA. SIAM. NORTH-WESTERN AUSTRALIA.

153. **Taphinella nigripennis** Jacoby.

Taphinella nigripennis Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 224; Mém. Soc. Ent. Belg. vii, 1900, p. 140; Fasc. Malay., App. ii, 1905, p. 5.

Head, prothorax, underside, femora, tibiæ and scutellum pale brown to dark brown; two or three basal segments of antenna dark brown mixed with black, remaining segments blackish; tarsi piceous, some parts more blackish than others; elytra shining black; other parts of body also shining.

Length, 6 mm.; *breadth*, 3 mm.

Distribution. BURMA: Bhamo, vii. 1886 (*Fea*). Also occurs in SIAM (*Robinson*).

Type in the Genoa Museum. Two examples from Fea's collection, presumably some of those from which Jacoby drew up his description, are in the collection of the British Museum.

Genus **SOLEPHYMA** nom. nov.

Euphyma Baly, Cist. Ent. ii, 1879, p. 457.
Solenia Jacoby, Ann. Mus. Civ. Genova, xxiv, 1886, p. 87.

GENOTYPE, *Euphyma collaris* Baly.

In 1886 Jacoby used the name *Solenia* for this genus because Baly's name had been used by himself in 1877 for a genus of CRYPTOCEPHALINÆ. Unfortunately Jacoby's name had also been used previously by Mulsant in 1875 for a subgenus of STAPHYLINIDÆ. Hence the necessity for another name.

Body oblong-ovate, sometimes more rounded or tending to be parallel-sided with the apex rounded.

Head with the eyes included contained entirely in the emargination of the front border of the prothorax; upper side convex, smooth, impunctate; separated from the frontal tubercles by a transverse impressed line terminated at each side by the eye-margin; frontal tubercles somewhat broad, flattish, smooth, impunctate; clypeus raised, with a few scattered hairs; labrum small, square in the genotype, but in other cases broader than long, with a few punctures and some erect, longish hairs; maxillary palpus with apical segment small, conical, distinct and much shorter than the penultimate. Eyes not strongly convex. Antenna slender, extending to the middle of elytron or a little beyond, sometimes to the end; first segment long and club-shaped; second small; third longer than second. *Prothorax* broader than long, front and hind margins slightly arched; on the hind margin at a short distance on either side from the middle is a very short longitudinal notch, within these limits the margin is more prominent; this is supposed to be characteristic of the genus, although one species is included which does not possess these notches; each side gently rounded, margin slightly reflexed; anterior lateral angles drawn forwards in the genotype, posterior almost right angles or slightly greater; each corner with a seta-bearing pore; upper surface uniformly convex from side to side, without depressions, smooth, impunctate or very finely punctate. *Scutellum* small, triangular with the apex rounded, and the surface smooth and impunctate. *Elytra* broader at base than the prothorax; humerus convex but not prominent; closely covered with punctures which show a tendency to longitudinal seriation. *Underside* fairly closely covered with silky pubescence; epipleuron gradually narrowing behind the middle and becoming extremely narrow on the apical margin. Legs slender, fairly long; tarsi long with the claw-segment moderately long; claws appendiculate.

Distribution. BURMA. MALAY PENINSULA. SUMATRA. CELEBES.

This genus has a superficial resemblance in coloration (elytra blue and other parts brown) and in the presence of small longitudinal notches on the basal margin of the pronotum to *Podagrica* Foudr. (see my volume in this series, 1926, p. 273).

Key to the Species.

1. At a short distance on either side of the middle point of the basal margin a short longitudinal notch .... 2.
Basal margin without such notches, length 3–5 mm., ♀ with short longitudinal lateral costæ on elytron .... *S. integricollis* (Jac.), [p. 333.

2. Body not distinctly ovate, tending to be more parallel-sided with the apex rounded; coloration of underside uniform in all parts; scutellum black; insect smaller than 5×3 mm. .... *S. indica* (Jac.), p. 332.
   Body distinctly ovate, broader in the middle and narrowing in front and behind; coloration of underside not uniform in all parts; scutellum brown; insects generally 6 mm. long, but may be smaller..... 3.
3. Punctures on the lateral area of elytron stronger and regularly arranged in longitudinal series .... *S. abdominalis* (Jac.), [p. 332.
   Punctures with a general tendency to longitudinal seriation, not markedly stronger on the lateral area .... *S. collaris* (Baly), p. 331.

154. **Solephyma collaris** (Baly).

Euphyma collaris Baly, Cist. Ent. ii, 1879, p. 457.
Solenia collaris Jacoby, Ann. Mus. Civ. Genova, xxvii, 1889, p. 236.
Solenia robusta Jac., Ann. Mus. Civ. Genova, xxxvi, 1896, p. 500.

Head, prothorax, two basal segments of antenna and scutellum paler brown to dark red-brown; antenna (except the two basal segments) and abdominal sternites always piceous; breast and legs vary from paler brown to piceous, but the colour is not uniform in all parts, sometimes the breast may be piceous while the femora are lighter and tibiæ and tarsi piceous, in some cases everything is piceous except some portions around the points of articulation between the segments of the legs, in other cases the upper sides of femora are lighter while everything else is piceous, and so on. Elytra dark blue, sometimes with a purplish sheen, sometimes with a very faint greenish tint, and sometimes much diluted with piceous. Body always shining above.

Head: third and fourth segments of antenna nearly equal; in the cotype-example of *robusta* (Sumatra) before me fourth stouter than third; fifth equal to fourth; sixth slightly thinner than fifth; sixth and seventh equal: eighth slightly shorter and thinner than seventh; eighth to eleventh equal; excepting that the fourth and fifth segments are not distinctly thicker the relative lengths of the antennal segments in specimens from various other localities are similar. *Prothorax*: the punctation in some examples distinctly seen and in others it is hardly visible. *Elytra*: the punctation in examples from Nilgiri Hills is very fine, but in the type-example it is stronger and in the cotype-example of *robusta* it is intermediate.

Length, 5·5–6·0 mm.; *breadth*, 3·5 mm.

Distribution. NILGIRI HILLS (*H. L. Andrewes & G. F. Hampson*). PONDICHERRY. ANAMALAIS (*Andrewes*). ASSAM:

The Hills, *i.e.* not from the plains (*A. W. Chennell*), type-locality of *collaris*. BURMA : Bhamo, viii. 1885 (*Fea*) ; Ruby Mines (*Doherty*) ; Tharrawaddy. Also occurs in SIAM, PERAK and SUMATRA.

Type of *collaris* Baly in the British Museum.

Cotype of *robusta* Jac. in the British Museum.

Owing to the fact that there are intermediate states in size, punctation of pronotum and elytra, and that I have before me a large number of examples from various localities, I have decided to sink *robusta* as a synonym of *collaris*. This is one of those species which have a wide distribution and exhibit distinct variation within certain narrow limits.

155. **Solephyma abdominalis** (Jacoby).

Solenia abdominalis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 986.

General colour brown ; labrum and mandibles brown ; antennæ (except two basal segments), tibiæ, tarsi and abdomen black ; elytra metallic dark blue.

Head : antenna extending to middle of elytron ; second segment short ; third twice as long as second ; fourth slightly longer than third. *Prothorax* rather more than twice as broad as long ; each side rounded at the middle ; surface extremely finely punctate. *Elytra* widened towards the middle, finely and irregularly but not very closely punctate, the punctures at the sides stronger and regularly arranged in longitudinal rows.

Length 5–6 mm.

Distribution. BURMA : Karen Hills (*Fea*).

Type in the Genoa Museum.

I have not seen this species. The description is adapted from Jacoby's original in English.

156. **Solephyma indica** (Jacoby).

Solenia (*Euphyma*) *indica* Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 235.

Head, three basal segments of antennæ, prothorax, underside and legs pale to dark brown ; fourth segment of antenna piceous, sometimes partly brown like the basal segments with the apical portion piceous, the remaining segments black ; scutellum black ; elytra blue with violet suffusion. Upper side more shining than the underside.

Body not so distinctly ovate as in the genotype, more nearly parallel-sided, with the apex rounded.

Head : the form of antennal segments differs from that of *S. collaris* Baly ; in the latter each segment from the fourth is more elongate, in this species it is comparatively short and knob-like ; although it is difficult to express the exact difference in words the ensemble of the segments of the two antennæ shows a perceptible distinction ; fourth segment nearly equal to third ; fifth slightly shorter than fourth but thicker especially towards the apex ; sixth shorter than fifth, only very slightly narrower at base than at apex ; sixth to tenth almost equal to one another, eleventh slightly longer with the apex pointed. *Prothorax* : upper surface with very minute, sparsely distributed and indistinctly impressed punctures, visible under a high magnification.

Length, 5 mm. ; *breadth,* 3 mm.

Distribution. BURMA : Amherst Dist., Kawkareik, i., ii., 1887 (*Fea*) ; Tharrawaddy ; Toungoo.

Type in the British Museum.

157. **Solephyma integricollis** (Jacoby).

Solenia integricollis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 987.

Head, three or four basal segments of antenna, prothorax and legs lighter brown ; rest of antenna blackish ; underside obscure piceous or brown ; scutellum brown ; elytra metallic dark blue, sometimes much diluted with piceous.

Head : antenna nearly as long as the body ; third and fourth segments nearly equal ; fifth slightly shorter than fourth ; fifth to ninth nearly equal to one another ; tenth very slightly shorter than ninth ; ninth and tenth equal, latter bluntly pointed at apex. *Prothorax* one-and-a-half times broader than long ; each side distinctly narrowed at base, rounded in middle ; upper surface rather convex, impunctate and without the notches on the basal margin. *Elytra* convex, apex rounded ; humerus rather prominent with a deep sulcation on its inner side ; surface very finely punctate. In the female elytron with two short costæ arising from the humerus and vanishing behind the middle, inner costa stronger than the outer ; and the punctures more distinct.

Length, 3–5 mm. ; ♀ larger.

Distribution. BURMA : Karen Hills, v., xii. 1888 (*Fea*).

Type (♀) in the British Museum.

Genus **CNEORANELLA** gen. nov.

GENOTYPE, *Cneorane pallida* Jac.

This is a monotypic genus.

This genus differs from *Cneorane*, from which it is separated in having (1) a different facies: being slender, slim and parallel-sided, and very convex; (2) the second and third segments of antenna nearly equal; (3) a squarish and less convex prothorax; (4) elytra not distinctly punctate.

Distribution. CEYLON.

158. **Cneoranella pallida** (Jacoby).

Cneorane pallida Jac., Proc. Zool. Soc. Lond. 1887, p. 113.

Shining pale brown, antenna (except three basal segments) and tarsi piceous. Body slender, oblong, parallel-sided, slightly narrowed towards the apex.

Head and the convex eyes together very slightly broader than the prothorax: upper surface smooth, impunctate, with a faint longitudinal median line which is continued between the frontal tubercles; front area separated from the tubercles by a transverse impressed line which is delimited on either side by the eyes; front tubercles large, fairly raised, smooth and impunctate; clypeus raised; labrum broader than long, with the front margin rounded and with a few scattered hairs; maxillary palpus with apical segment minute, conical, imbedded on the much thicker penultimate segment. Eyes strongly convex. Antenna long, slender, somewhat shorter than the body; first segment long, club-shaped; second and third short, nearly equal; fourth nearly equal to first in length, three times longer than third; fifth shorter than fourth; sixth slightly shorter than fifth; sixth to eighth nearly equal to one another; ninth slightly shorter than eighth; ninth to eleventh nearly equal to one another; eleventh pointed at apex. *Prothorax* slightly broader than long, somewhat narrowed at the base; front margin straight, sides obliquely straight, basal margin almost straight with a slight emargination in the middle; each side and base finely margined; each corner with a fine seta arising from a pore, none of the angles strongly produced; upper surface convex but not so strongly as in *Cneorane*, without depressions, impunctate. *Scutellum* triangular, surface smooth and impunctate. *Elytra* much broader at base than the prothorax; humerus strongly raised; surface not strongly convex, seen under high magnification uneven, and with some obscure and scattered punctures. *Underside* sparsely covered with fine hairs; epipleuron broad at base, abruptly narrowed near the middle and continued very narrowly to the apex. Legs slender, long; tibiæ and tarsi long; claws appendiculate.

Length, 5 mm.; *breadth*, 2 mm.

Distribution. CEYLON: Bogawantalawa, 4,900–5,200 ft., 21. iii.–4. iv. 1882 (*G. Lewis*).

Type in the British Museum.

Genus **CNEORANE** Baly.

Cneorane Baly, Ent. Monthly Mag. ii, 1865, p. 97; Trans. Ent. Soc. Lond. 1874, p. 182; Chapuis, Gen. Col. xi, 1875, pp. 178 & 179; Jacoby, Biol. Centr.-Amer. vi, 1, 1888, p. 604; Allard, Comptes-Rendus Soc. Ent. Belg. xxxiii, 1889, p. lxix.

GENOTYPE, *Galleruca rubricollis* Hope=*Cneorane fulvicollis* Baly.

In erecting this genus Baly described one species, namely, *fulvicollis*, which falls as a synonym of *rubricollis*.

Body oblong, broadish behind, sometimes more parallel-sided, apex rounded, fairly strongly convex.

Head: vertex not very convex, impunctate, separated from the front part including the eyes by an elevation, being itself at a lower level; frontal tubercles triangular, well developed, with a fine median longitudinal impression; clypeus as much raised as the frontal tubercles, impunctate, partly without hairs; labrum squarish, very slightly broader than long, front margin rounded with an emargination in the middle, a few longish, erect hairs on the surface; maxillary palpus fairly long, with the apical segment conical, very small but distinct, penultimate segment fairly long, thickened towards the apex. Eyes not very strongly convex. Antenna long, slender; in the male of the genotype four apical segments modified; first segment long and club-shaped, but sometimes other segments are somewhat longer; second small; third longer than second. *Prothorax* slightly broader than long, front margin almost straight, each side most convex in the middle, narrowing anteriorly and slightly more so posteriorly; the curve of the basal margin merges with that of the side in such a way as to make the posterior lateral angles almost imperceptible (this is the characteristic of the genotype), but in some other species these angles are more prominent; each corner with a seta-bearing pore; lateral margin slightly reflexed; upper surface strongly convex, without any depressions, and very finely and sparsely punctate. *Scutellum* broadish, triangular, with the apex rounded and the surface smooth, impunctate. *Elytra* broader at base than the prothorax; humerus raised but not prominently, punctate;

a certain basal area gently convex ; often matt (as in the genotype), in some cases shining but not brilliantly ; strongly, confusedly and very closely punctate, the punctures touching each other (as in the genotype), but in some species punctures fine and sparsely distributed ; each elytron with traces of longitudinal ribs in the genotype, a condition not seen in some other species ; lateral borders finely margined and very slightly reflexed. *Underside* sparsely covered with fine hairs ; epipleuron fairly broad, surface slightly depressed, continued below the middle, only slightly narrowing towards the apex, near the extreme apex almost obliterated ; but in some species this structure differs a little. Legs fairly long, not very slender ; posterior tibia somewhat longer than either the front or the middle tibia ; tarsi long, first segment of posterior tarsus longer than the corresponding segment of the other tarsi ; claw-segment long ; claws appendiculate.

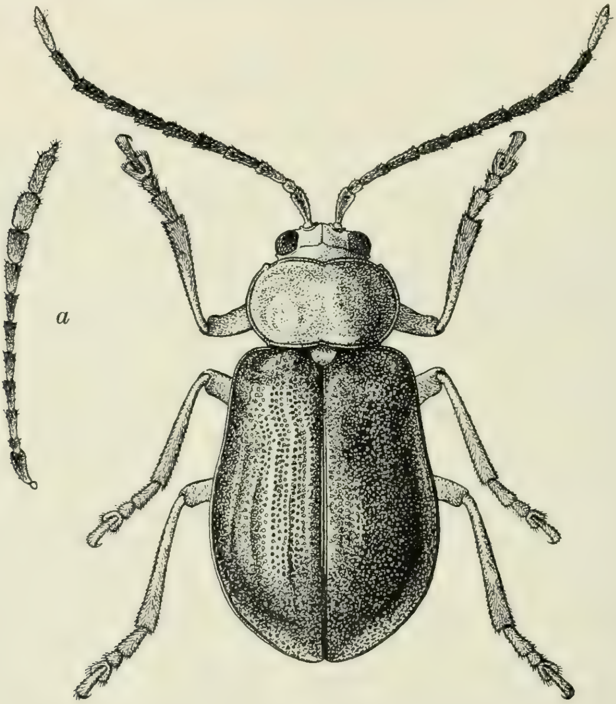

Fig. 98.—*Cneorane rubricollis* (Hope), ♀. *a*, antenna of male.

Distribution. Eastern Himalayas. Assam. Burma. Indo-Chinese region. China. Formosa.

Key to the Species.

1.	Elytra dull, not shining	2.
	Elytra not dull, shining	7.
2.	Colour of underside, legs, scutellum and two basal and two apical segments of antenna reddish or red-brown; elytra greenish-blue; other segments of antenna black	*C. orientalis* Jac., [p. 346.
	No such combination of colours	3.
3.	Elytra greenish-blue or blue-green	*C. rubricollis* (Hope), [p. 338.
	Elytra greenish-bronze	4.
	Elytra bluish-black	5.
4.	Hind legs only completely black or blackish	*C. rugulipennis* Baly, [p. 339.
	All legs completely black	*C. subænea* Jac., p. 340.
5.	All femora (except the apices) brown	6.
	All femora not so coloured	*C. feæ*, Jac., p. 340.
6.	Insect longer, 8·5×5 mm.; elytral punctures closer and larger	*C. birmanica* Jac., [p. 340.
	Insect shorter, 7×4 mm.; elytral punctures more sparse	*C. dohertyi* sp. n., [p. 341.
7.	Head and pronotum shining red-brown; scutellum black; elytra blue, closely punctate with the interstices between the punctures alutaceous	*C. alutacea* Allard, [p. 341.
	No such combination of characters	8.
8.	Insect narrow, not broader than 3·5 mm.	9.
	Insect broader than 3·5 mm.	10.
9.	Pronotum yellow-brown, lateral margins hardly explanate	*C. varipes* Jac., p. 342.
	Pronotum pitch-brown to black, lateral margins distinctly explanate	*C. rubyana* sp. n., [p. 343.
10.	Punctures on elytra fine and sparse	11.
	Punctures deeply impressed, larger and more closely placed	13.
11.	Insect 8×4·5 mm.; elytra blue, all legs (except tarsi) brown, abdominal sternites and metasternum black, antennæ and tarsi piceous	*C. manipurana* sp. n., [p. 343.
	Elytra purple-violet, often with opal reflections, and no such combination of other characters	12.
12.	Antennæ brown, except the extreme apex and portions of upper sides of first, second and third segments; lateral margins of prothorax not very rounded.	*C. fulvicornis* Jac., [p. 344.
	Antennæ black except parts of three basal segments; lateral margins of prothorax more rounded	*C. braeti* Duviv., [p. 345.
13.	Underside, legs, scutellum and two basal and two apical segments of antenna reddish or red-brown; elytra greenish-blue; other segments of antenna black.	*C. orientalis* Jac., [p. 346.
	Femora, pro- and mesosternum, head, prothorax pale brown; antennæ, tibiæ, tarsi piceous; elytra and underside metallic blue	*C. sudha* sp. n., p. 347.

It will be noticed that in the above key *C. orientalis* occurs twice. If it is decided that it is opaque the key provides a means of identifying it ; on the other hand, if it is considered shining it has a place in that section also.

159. **Cneorane rubricollis** (Hope).

Galleruca rubricollis Hope, in Gray, Zool. Miscell. 1831, p. 29.
Cneorane fulvicollis Baly, Ent. Monthly Mag. ii, 1865, p. 97 ; Jac., Proc. Zool. Soc. Lond. 1888, p. 350.
Cneorane crassicornis Fairmaire, Ann. Soc. Ent. France, (6) ix, 1889, p. 81, ♂ ; Baly, Ent. Monthly Mag. (2) i, 1890, p. 14.

Elytra blue or greenish-blue, sometimes more green than blue, subnitid ; abdominal sternites blackish, with metallic sheen ; antennæ, tibiæ, apices of femora and tarsi piceous, three basal segments of antenna and the underside of the rest light brown, upper side of segments four to nine darker and with a slight metallic sheen, segments ten and eleven wholly brown ; these piceous parts are in some examples dark brown or almost reddish, rest of the body including head, prothorax, scutellum, breast and legs partly bright brown ; the colour of the scutellum in some examples is very dark brown and with a slight metallic sheen ; the pronotum and scutellum are always more shining than the elytra.

Head : in the female the antenna extends nearly to the apex of elytron ; first segment nearly equal to third ; fourth slightly longer than third, somewhat thicker towards the apex ; fifth as thick as the fourth but somewhat shorter ; fifth, sixth and seventh nearly equal to one another ; eighth very slightly shorter than seventh ; eighth and ninth nearly equal ; both tenth and eleventh more slender and longer than ninth ; eleventh more slender and longer than tenth. In the male first segment much thickened, longer than third ; second small, as usual in the genus ; third to fifth nearly equal in length but progressively thicker towards the apex ; sixth somewhat shorter than fifth but much thicker ; seventh equal to sixth ; eighth much thicker than seventh but much narrower at base than at the apex ; ninth, tenth and eleventh enormously thickened ; ninth almost as broad at base as at apex, convex above, rounded at sides and nearly flat on the underside ; tenth somewhat narrower towards the apex, convex above, rounded at sides and flattened on the underside ; eleventh longer than either tenth or ninth but less convex above, broader at base, gradually narrowing towards the apex which is conical and distinctly delimited, flattish on the underside. The surface texture of the underside of the three apical segments differs from that of the upper side in being more rough in general appearance. The whole antenna is covered with hairs which are stiffer and thicker on the apical segments. *Prothorax*: seen under a high magnification upper surface sparsely covered with finer and coarser punctures.

Secondary sexual character. In the ♂ three apical segments of antenna are modified as described above.

Length, 9 mm.; *breadth*, 5 mm. These measurements equally apply to Hope's and Baly's types. A smaller example, *length*, 8 mm.; *breadth*, 4 mm.

Distribution. NEPAL (locality of Hope's type). BUXAR DUARS. MUNGPU. ASSAM (*W. F. Badgley*). Baly's type has only "India" on the label.

Types in the British Museum.

160. **Cneorane rugulipennis** Baly.

Cneorane rugulipennis Baly, Trans. Ent. Soc. Lond. 1886, p. 27.

Body somewhat broadened behind. Elytra subnitid, bronze; head, prothorax, undersides of pro- and mesothorax, front and middle femora deep rich brown; antennæ, front and middle tibiæ and tarsi piceous; underside of metathorax, abdominal sternites and hind legs black, slightly mixed with the metallic colour of the elytra.

Head: third segment of antenna nearly three times as long as the second; fourth somewhat longer than third; fifth nearly equal to fourth; sixth slightly shorter than fifth; sixth to eleventh nearly equal to one another, latter bluntly pointed at the apex; there may be a slight variation in the relative lengths. *Prothorax* more narrowed towards the base than towards the front, and accordingly the curve of the lateral margin is modified; upper surface more perceptibly punctate than other species; both finer and coarser punctures present, latter more numerous on the lateral sloping areas in front; in the type example nearer the front and on either side of the middle longitudinal line a round concave spot, but this cannot be confused with pronotal depressions dealt with in the ensuing subsection; posterior lateral angles obtuse, anterior angles thickened and slightly produced. *Elytra*: punctures on the postbasal area coalesce producing a rugosity, especially behind the basal convex area, generally the punctures are coarser and closer than in other species; traces of one or two longitudinal ribs on each elytron can be seen in certain aspects.

Length, 5·5–9 mm.; *breadth*, 3–4 mm.

Distribution. PUNJAB: Kangra Valley, July 1899 (*Dudgeon*). WESTERN HIMALAYAS: Almora, Chaubattia, 6,000–7,000 ft. (*S. R. Archer*). EASTERN HIMALAYAS: Darjeeling, 25. iv. 1911. ASSAM: Sadiya (*Doherty*); Manipur (*Doherty*). BURMA: Ruby Mines (*Doherty*).

Type in the British Museum.

161. **Cneorane subænea** Jacoby.

Cneorane subænea Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 945.

Head, prothorax, front and middle femora and the undersides of three basal segments of antenna yellow-brown ; rest of antenna, scutellum, underside and legs black ; elytra greenish-bronze.

Head impunctate ; frontal tubercles broad ; interantennal ridge acute. Antenna not quite extending to the apex of elytron ; third segment half of fourth in length. *Prothorax* subquadrate, about one and one-half times as broad as long ; sides rounded, slightly narrowed at base ; anterior angles slightly prominent ; upper surface rather convex, entirely impunctate, with a small fovea at each side. *Elytra* closely and finely punctate. *Underside* finely pubescent.

Length, about 6 mm.

Distribution. BURMA : Karen Hills (*Fea*).

Type in the Genoa Museum.

Jacoby described this species from one example. I have not seen the type. The above description is adapted from Jacoby's original.

162. **Cneorane feæ** Jacoby.

Cneorane feæ Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 947.

General colour bluish-black ; head, two basal segments of antenna entirely or on the underside only, and prothorax brown ; scutellum black.

Head : upper surface impunctate. Antenna slender, extending to two-thirds the length of the elytron ; third segment as long as the fourth. *Prothorax* twice as broad as long ; sides rounded, anterior angles produced outwards ; upper surface impunctate, with a small fovea at each side. *Elytra* closely and strongly punctate, with traces of longitudinal narrow spaces.

Length, about 6 mm.

Distribution. BURMA : Karen Hills, May and December (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is adapted from Jacoby's original.

163. **Cneorane birmanica** Jacoby.

Cneorane birmanica Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 132.

Body oblong, subnitid ; head and pronotum more shining than elytra. All femora, head, prothorax and underside of mesothorax rich brown ; tibiæ and tarsi and greater part of antennæ black, but undersides of first, second and third segments brown ; scutellum shining black ; elytra and underside (except the parts indicated above) dull, deep purple.

Head : antenna long, extending almost to the apical area of elytron ; fourth segment longer than third ; fifth shorter than fourth ; fifth to eleventh nearly equal to one another in length, although the last three segments are somewhat thinner. *Prothorax* : posterior lateral angles slightly greater than right angles ; upper surface smooth, impunctate. *Elytra* : punctures deeply impressed, closely placed, giving an appearance of slight rugosity ; in some aspects one fairly complete and two interrupted costæ can be recognized.

Length, 8·5 mm. ; *breadth*, 5 mm.

Distribution. BURMA : Ruby Mines (*Doherty*).

Type in the British Museum.

164. **Cneorane dohertyi** sp. nov.

Body oblong, subnitid. All femora, head, prothorax and underside of mesothorax rich brown to paler brown ; three proximal segments of antenna piceous, rest of the segments blackish ; tibiæ and tarsi piceous to black ; scutellum dark brown with the edges black ; elytra and underside (except the parts indicated above) dull black with bluish-greenish tint.

Head : antenna long, extending almost to the apical area of the elytron ; fourth segment longer than third ; fifth somewhat shorter than fourth ; the rest of the segments nearly equal to one another in length, although the apical three or four are somewhat thinner. *Prothorax* : posterior lateral angles almost right angles or slightly greater ; upper surface smooth, impunctate. *Elytra* : basal convex area rather prominent ; punctures well impressed but smaller and more sparsely distributed than those of *C. birmanica*, on the apical area they are finer ; the appearance of rugosity and some recognizable costæ as are found in *C. birmanica* are absent in this species.

Length, 7 mm. ; *breadth*, 4 mm.

Distribution. ASSAM : Patkai Mts. (*Doherty*) ; Sadiya (*Doherty*).

Type in the British Museum.

Described from two examples.

165. **Cneorane alutacea** Allard.

Cneorane alutacea Allard, Comptes-Rendus Soc. Ent. Belg. xxxiii, 1889, p. lxx.

Body oblong-ovate, slightly broadened behind, convex, shining. Head and pronotum shining red-brown. Scutellum black. Elytra blue, finely and very closely punctate, with the interstices between the punctures alutaceous [*i. e.*, of the texture and colour of the skin of a tanned sun-bather]. This character distinguishes it from *C. fulvicollis* Baly. The venter red-brown, tibiæ and tarsi black.

Length, 6 mm.

Distribution. IND. ORIENT.

Type in Allard's Collection.

I have not seen the type. The above description is adapted from Allard's original in French. The locality is not more definite than "Ind. orient."

166. **Cneorane varipes** Jacoby.

Cneorane varipes Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 299.

Body comparatively more parallel-sided and not so broad as in the other Indian species; shining. Head, prothorax, front and middle legs (except tibiæ and tarsi), undersides of pro- and mesothorax deep brown; antennæ, front and middle tibiæ and tarsi piceous; metasternum and abdominal sternites and hind legs black slightly mixed with metallic blue; elytra including epipleura pure metallic blue; scutellum piceous; undersides of three or four basal segments of antenna brown, upper surface piceous, sometimes the upper surface of front and middle femora slightly darker and underside of corresponding tibiæ lighter.

Head: third segment of antenna nearly twice as long as the second; fourth slightly longer than third; fifth slightly shorter than fourth; fifth to eleventh nearly equal to one another; eleventh bluntly pointed at the apex. In the specimens in the British Museum a slight variation is noticeable in the relative lengths of antennal segments, these tending as the apex is approached to become shorter and sometimes slightly thicker, which is, perhaps, a secondary sexual character of the male. *Prothorax*: lateral margins uniformly and gently rounded, slightly reflexed, much less explanate than in *C. rubyana*; lateral posterior angles obtuse; pronotal punctures extremely fine, obsolete and sparse. *Elytra*: punctures large, well-impressed and close together. *Underside*: hair-clothing whitish; epipleuron with the surface uneven.

Length, 6·5 mm.; *breadth*, 3 mm.

Distribution. On the labels of the specimens from which Jacoby drew up his description only the letters "N.W.P." occur. This symbol used to denote the "North-Western Provinces," now called the "United Provinces." There is one example from MANIPUR (*Doherty*) in the collection of the British Museum which has been referred to this species.

Type in the British Museum.

167. **Cneorane rubyana** sp. nov.

Body not so broad as in the other Indian species, hence the species appears comparatively more nearly parallel-sided; shining. Elytra and epipleura dark blue-green; scutellum black to dark pitch-brown; underside and legs black, trochanters often and femora sometimes pitch-brown; head, antennæ and prothorax blackish to pitch-brown; pronotum sometimes reddish-brown and sometimes quite black; in some cases the antenna is somewhat lighter, especially on the undersides of the three basal segments and at the points of articulation of the segments, the contrast between the lighter and darker colours being pronounced.

Head: antenna extending to the apical part of elytron; third segment nearly three times as long as the second and equal to the fourth; fifth slightly shorter than fourth; sixth slightly shorter than fifth and equal to seventh; eighth slightly shorter than seventh; eighth to eleventh nearly equal to one another; eleventh bluntly pointed at apex; whole antenna fairly thickly covered with whitish hairs. *Prothorax*: each posterior lateral angle somewhat greater than a right angle; posterior margin almost straight, with a slight emargination in the middle; all borders margined, lateral with the reflexed part comparatively broader, *i. e.*, more explanate than that of other species; punctures on the pronotum very sparse, but visible under a high magnification. *Elytra*: punctures strongly impressed, close to each other. *Underside*: fairly thickly covered with whitish hairs.

Length, 6·5 mm.; *breadth*, 3·5 mm.

Distribution. BURMA: Ruby Mines (*Doherty*).

Type in the British Museum.

Described from six examples.

168. **Cneorane manipurana** sp. nov.

Body somewhat widened behind. Head, prothorax, underside of mesothorax, legs (except tarsi, which are piceous) brown; antennæ blackish, parts of three basal segments brown; scutellum piceous; elytra shining metallic blue; abdominal sternites and metasternum black.

Head: antenna long, extending to apical area of elytron; fourth segment longer than third; fifth nearly equal to fourth; sixth somewhat shorter than fifth; sixth to ninth nearly equal to one another; tenth and eleventh more slender and somewhat longer. *Prothorax*: sides gently rounded, not more so in front of the middle than behind; posterior lateral angles rounded; upper surface sparsely punctate, punctures somewhat larger and more crowded on the basal and lateral areas. *Elytra*: basal convex areas fairly prominent;

very sparsely and finely punctate, punctures in the depression behind the basal convexity comparatively larger.

Length, 8 mm. ; *breadth*, 4·5 mm.

Distribution. Manipur (*Doherty*).

Type in the British Museum.

Described from three examples.

169. **Cneorane fulvicornis** Jacoby.

Cneorane fulvicornis Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 209.

Body parallel-sided. Front and middle femora brown; head, prothorax and underside of mesothorax brown; antennæ lighter brown except the extreme apex and portions of upper sides of first, second and third segments; front tibia dark brown and piceous towards the apex; front tarsi, middle tibiæ and tarsi, hind legs including all segments, and underside (except the parts indicated above) deep piceous; elytra and scutellum opalescent purple-violet.

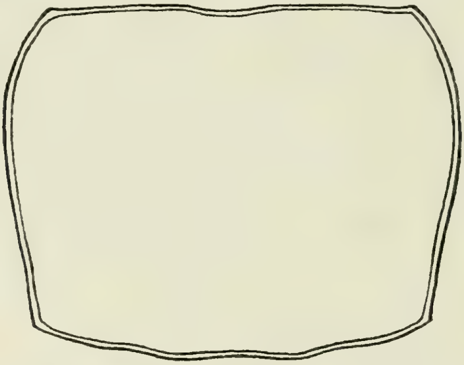

Fig. 99.—*Cneorane fulvicornis* Jacoby. Pronotum, showing the somewhat slight curvature of the sides. Compare with *C. braeti* Duvivier.

Head: antenna long, slender, extending to the apical area of elytron; fourth segment longer than third; fifth very slightly shorter than fourth; from the fifth to the last the segments are nearly equal to one another. *Prothorax*: lateral margins not very convex, gently rounded in front of the middle; upper surface extremely minutely punctate, punctures sparser in the middle area and more crowded on the lateral areas especially in front. *Elytra*: very minutely and sparsely punctate.

Length, 8 mm. ; *breadth*, a little more than 3·5 mm.

Distribution. Tenasserim, April 1887 (*Fea*).

Type in the British Museum.

170. **Cneorane braeti** Duvivier.

Cneorane braeti Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 435.

Elytra purple-violet with opalescent reflections; head, prothorax, pro- and mesosternum yellow-brown; antennæ black except the three basal segments which are brown, but with black marks on the inner side; legs yellow-brown except the tarsi which are blackish; epipleuron deep blue; underside deep blue with slight violet tint.

Head with the vertex smooth, shining. Antenna extending to three-fourths of the elytron; third segment three times as long as the second; fourth as long as the two preceding segments together; fifth to seventh progressively but slightly diminishing in length; eighth to tenth enlarged, one and a half times broader than the previous segments, cylindrical; eleventh as long as but slightly thicker than the fourth, pointed at the apex. *Prothorax* nearly one and a half times broader than long, sides feebly and regularly rounded, narrowed towards the base; basal margin slightly emarginate in front of the scutellum; posterior lateral angles right angles, anterior somewhat acute. *Scutellum* smooth, shining. *Elytra* closely and fairly deeply punctate, but not so closely and deeply as in *C. rugulipennis* or *C. orientalis*, with finer punctures in the interstices. *Underside*: pro- and mesosternum finely punctate, covered with fine hairs.

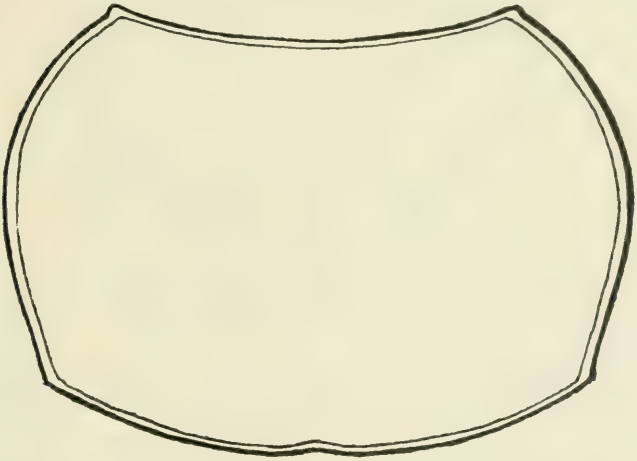

Fig. 100.—*Cneorane braeti* Duvivier. Pronotum, showing the convexity of the sides.

Secondary sexual character. In ♂ eighth to tenth segments of antenna modified as described above.

Length, 6–7 mm.; *breadth*, 3·5–4·25 mm.

Distribution. DARJEELING: Kurseong. MUNGPU. BURMA: Ruby Mines (*Doherty*).

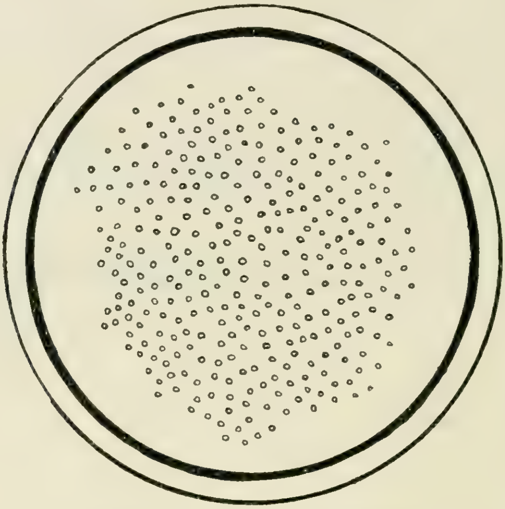

Fig. 101.—*Cneorane braeti* Duvivier. A magnified area of the elytral surface, showing the fine punctures. Compare with *C. orientalis* Jac.

Type location unknown to me.

I have not seen the type, but there are many examples in the collection of the British Museum, which can certainly be identified as this species.

171. **Cneorane orientalis** Jacoby.

Cneorane orientalis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 946.

Head, prothorax, scutellum, underside and legs deep rich brown; epipleuron dark pitch-brown, outwardly edged with the metallic sheen of the elytra; antennæ black except the three basal and the two apical segments: the first segment entirely and the underside of second and third segments always brown, upper side of apex of first, second partly and third almost entirely blackish; tenth segment often and eleventh always brown. Elytra pure blue.

Head: antenna extending a little beyond the middle of the elytron; second segment half the length of third; fourth somewhat longer than third; fourth and fifth equal; sixth somewhat shorter than fifth; sixth and seventh equal; eighth slightly shorter than seventh; eighth and ninth equal; tenth and eleventh somewhat thinner, tenth equal to ninth in length, eleventh longer than tenth, tapered to the apex. *Prothorax*: posterior lateral angles obtuse, anterior acute but more pronounced; seen under a high magnification sparsely covered with fine punctures although on the sloping surface on each side there are some larger punctures, and these have darker rims. The coloration of the pronotum is not uniform, there being ill-defined and irregular darker patches. *Elytra*: closely covered with rather deep, well-impressed and fairly large punctures. These are more crowded on the middle lateral area of each elytron than elsewhere, producing a rougher appearance. *Underside*: epipleuron narrowing behind the middle, more so than in the type-example.

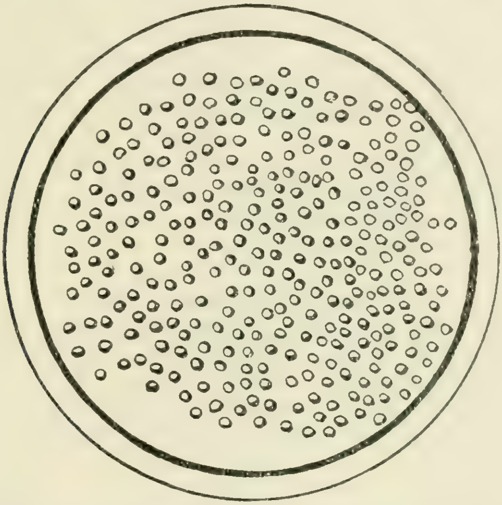

Fig. 102.—*Cneorane orientalis* Jacoby. A magnified area of the elytral surface, showing the strongly impressed punctures.

Length, 9 mm.; *breadth*, nearly 4·5 mm.

Distribution. BURMA: Karen Hills, v., xii. 1888 (*Fea*). SOUTH SHAN STATES: Kalaw, 4,000 ft., April 1916 (*F. M. Mackwood*).

Type in the British Museum.

172. **Cneorane sudha** sp. nov.

Body very slightly widened behind the middle. All femora, pro- and mesosternum, head and prothorax pale brown; antennæ, tibiæ and tarsi piceous; the undersides of three basal segments of antennæ brown; elytra and underside (except the parts indicated above) metallic blue; scutellum deep piceous; upper side shining.

Head: antenna long, slender, extending nearly to the apical area of elytron, sometimes slightly shorter; third segment three times longer than second; fourth longer than third; fifth shorter than fourth; fifth to eighth nearly equal to one another, but eighth somewhat thinner than others; ninth, tenth and eleventh thinner than previous segments and equal to one another in length. *Prothorax*: each lateral margin with the convexity in front of the middle well marked; posterior lateral angles sharply angular and slightly greater than right angles; upper side smooth, impunctate. *Elytra*: convexity of the basal area well marked; fairly closely punctate, the punctures well impressed and moderately large; in some aspects a faint impression of two or three longitudinal ribs is produced.

Length, nearly 9 mm.; *breadth*, nearly 5 mm.

Distribution. ASSAM: Sadiya (*Doherty*).

Type in the British Museum.

Described from four examples.

Genus **DERCETIS** Clark.

Dercetis Clark, Ann. Mag. Nat. Hist. (3) xv, 1865, p. 146.
Dercetes Weise, Philipp. Jour. Sc. viii, 3 D, 1913, p. 225, Anm.; id., Deutsche Ent. Zeitschr. 1916, p. 39.
Anthipha Har., Cat. Col. xii, 1876, p. 3592; Jac., Novit. Zool. i, 1894, p. 317; id., Ann. Mus. Civ. Genova, xxxvi, 1896, p. 475.
Antipha Baly, Ann. Mag. Nat. Hist. (3) xvi, 1865, p. 251.
Dercetis Har., Cat. Col. xii, 1876, p. 3595.
Derectis Jac., Entomologist, xxv, 1892, p. 162.

GENOTYPE, *Dercetis depressa* Clark (Penang). Fixed by Clark.

Clark spelt the name with an "i" after the "t." In Junk & Schenkling's Coleop. Catalogus, pt. 78, 1924, p. 143, the name is erroneously given as *Dercetes* of Clark *.

Body in the type-specimen small (5×3 mm.), not markedly convex and ovate, that is, narrowing anteriorly and posteriorly (some species included in this genus have both the size and form different), generally shining, coloration sombre with spots or bands on elytra or the latter of a uniform coloration.

Head together with the eyes broad but enclosed completely

---

* Weise's error should not be perpetuated, although he, in all good faith, insists on our doing so. All the species at present included in this genus do not conform to the genotype in every respect. Sooner or later more analytical study will necessitate a splitting up of this genus; but I could not introduce such changes as became apparent to me on the basis of present faunistic study alone. For any alterations that are required the genus will have to be studied as a whole.

within the front emargination of the prothorax ; vertical area not very convex, smooth, impunctate ; frontal tubercles oblique, somewhat flattened, generally impunctate and separated from each other by the wedge-shaped posterior end of the clypeus ; the latter generally raised, with the surface either smooth or finely and sparsely punctate ; in the interocular space behind the tubercles is a general depression and a transversely impressed line which is sometimes very deep ; the general depression sometimes with a median longitudinally impressed line ; labrum broader than long, surface slightly convex in front, with a few longish hairs ; maxillary palpus fairly long, with the last segment conical and not shorter than the penultimate segment. Eyes strongly convex. Antenna slender, long ; first segment long and club-shaped ; second always small and third always longer than second. *Prothorax* short, much broader than long ; anterior border widely concave, gently arched or nearly straight, slightly narrower than the posterior margin ; sides almost straight or gently rounded ; all borders margined ; each corner with a seta-bearing pore, the anterior ones often thickened and enlarged ; upper surface not very convex, sometimes the middle area distinctly flat, without any depressions, sloping down in front at each side, often impunctate, sometimes with very fine punctures, or distinctly punctate, but these punctures always finer than those of the elytra. *Scutellum* triangular, with the apex acute and surface slightly convex and always impunctate. *Elytra* broader at base than the prothorax ; humerus convex, impunctate ; a certain area at base on each side of the scutellum convex, but this character is not pronounced in the genotype ; upper surface confusedly punctate. *Underside* sparsely covered with fine hairs ; epipleuron broader at base, abruptly narrowed behind the middle and continued very narrowly to the apex ; this is generally the case, but there are variations. Legs fairly slender, not very long : femora somewhat stout ; hind tibia longer than either the front or middle tibia ; first segment of hind tarsus longer than the corresponding segments of the other tarsi and slightly longer than the two following segments together ; claws appendiculate.

Distribution. INDIA. BURMA. MALAY PENINSULA. SUMATRA. JAVA. BORNEO. PHILIPPINE ISLANDS. INDO-CHINA.

Key to the Species.

1. Insect always smaller than 10 × 5·3 mm... 2.
   Insect between 10–11 × 5·3–5·5 mm. .... 23.
2. Elytra unicoloured .... 9.
   Elytra not unicoloured .... 3.
3. Posterior portion of elytral surface metallic blue-violet or violaceous-black ; basal portion brown .... 4.

Longitudinal stripes, one sutural and one lateral on each side, produced by the partial discharge of blue colour of elytra; stripes broader towards the base, irregularly formed .... *D. collina* Weise, [p. 353.

Each elytron with two well-formed round spots .... *D. nietneri* (Baly), [p. 351.

Elytra with bands .... 5.

4. Posterior portion of elytra blue-violet; terminal segments of antenna not thickened .... *D. posticata* (Baly), [p. 354.

Posterior portion of elytra violaceous-black; terminal segments of antenna thickened. *D. antennata* (Jac.), [p. 355.

5. Elytra with a single light band on a blackish background .... 6.

Elytra with more than one band .... 7.

6. Head always darker brown; general colour always uniform black or blackish; elytral band extending to suture and lateral margins, never tending to be reduced to a transverse ovate patch; 5–6·5 mm. × 3–4 mm. .... *D. flavocincta* (Hope), [p. 355.

Head always pale brown; general colour varies from pale to red-brown, the whole elytral pattern sometimes faint, elytral band with a tendency to reduction to a transversely ovate patch; body usually smaller, 4·5–5 × 2·5–3 mm. .... *D. mandarensis* (Jac.), [p. 357.

7. Elytra with two reddish bands, one basal and another median, produced by the reduction of reddish background colour . *D. shona* sp. n. (var.), [p. 361.

Elytra with three pitch-brown or blackish bands: basal, median and apical ..... 8.

8. Median and apical bands very broad, alternating lighter bands not of the same shade .... *D. histrio* (Baly), [p. 358.

Median and apical bands finer, latter nearer the apex, alternating lighter bands of the same shade.................... *D. feæ* (Jac.), p. 359.

9. Pronotum and elytra concolorous........ 10.

Pronotum and elytra differently coloured. 13.

10. Upper side metallic violaceous; length 6 mm. .... *D. lævicollis* (Jac.), [p. 360.

Insect not so coloured .... 11.

11. Suture narrowly and margins all round pitch-brown; 4·5 × 2·5 mm. .... *D. bretinghami* (Baly), [p. 360.

Insect not so characterized .... 12.

12. Colour red to brown, sometimes red broken into two transverse bands; a certain basal area on each elytron convex; 6·5 × 3·5 mm....................... *D. shona* sp. n., p. 361.

Insect entirely shining brown, varying from pale to darker shade; scutellum sometimes black; basal area on each elytron not convex; 5·5–7·5 × 3·5–4·5 mm...... *D. flavescens* (Allard), [p. 362.

13. Insect entirely brown; pronotum and legs lighter; elytral punctures fine; length 4 mm. .... *D. inornata* (Jac.), [p. 363.

No such combination of characters ...... 14.

14. Head and pronotum pale brown, elytra brown, red-brown to black; 4·5–5 × 2·5–3 mm. .... *D. mandarensis* (Jac.), [(var.), p. 357.
No such combination of characters ...... 15.

15. A large area on head extending from eye to eye and a fairly broad marginal band at the base of elytra including the scutellum black, pronotum pale to dark brown, elytra brown to red; 5–6 × 3–4 mm..... *D. orientalis* Jac., [p. 364.
No such combination of characters ...... 16.

16. Body ovoid, strongly convex; completely shining red-brown, elytra with a purplish sheen; 7·25 × 5·5 mm. .... *D. subcærulea* (Jac.), [p. 364.
No such combination of characters ...... 17.

17. Pronotum red-brown, elytra black; 6 × 3·5 mm. .... *D. miniaticollis* (Hope), [p. 365.
No such combination of characters ...... 18.

18. Pronotum brown, elytra metallic blue, green or blue-green, etc. .... 19.
Pronotum black, elytra blue with violet sheen .... *D. wallardia* sp. n., [p. 366.

19. Elytral sculpture rough, costate .... *D. travancorensis* sp. n., [p. 367.
Elytral sculpture smooth, not costate.... 20.

20. Insect not more than 6 mm. long. ...... 21.
Insect more than 6 mm. long .... 22.

21. Pronotum markedly convex, impunctate, elytra bluish-green; 6 × 2·75 mm. .... *D. birmanica* (Jac.), [p. 368.
Pronotum not markedly convex, sparsely covered with punctures; blue-black somewhat diluted with brown; 5–6 × 3–3·5 mm. .... *D. puncticollis* (Jac.), [p. 368.

22. Insect ovoid; pronotum red-brown, elytra shining metallic green; elytra finely punctate; 7 × 4 mm. .... *D. dimidiaticornis* [(Jac.), p. 369.
Body oblong, broadened posteriorly; pronotum bright brown, elytra greenish-blue with golden suffusion; elytra with large and coarse punctures; 6·5–8 × 4–4·75 mm. .... *D. viridipennis* [(Duviv.), p. 370.

23. Each elytron with a longitudinal ridge somewhat above the lateral margin .... *D. picipes* (Baly), [p. 372.
Each elytron without such a lateral ridge .... *D. indica* (Duviv.), [p. 372.

173. **Dercetis nietneri** (Baly).

Antipha nietneri Baly, Ann. Mag. Nat. Hist. (5) iv, 1879, p. 116; Jac., Proc. Zool. Soc. Lond. 1887, p. 118, pl. xi, f. 7.

General colour shining brown; an ill-defined patch on the pronotum and two on each elytron, one median and another apical, black; eyes black; scutellum piceous; antenna except three basal segments darker brown. The pronotal patch varies in extent: from a small patch occupying the central area it has in some cases spread over the whole pronotum. The elytral patches vary only slightly and maintain their relative positions fairly constantly; their boundaries are ill-defined. In one example the basal margin and suture narrowly (but without staining the scutellum) and the elytral margins all round fairly broadly (including the epipleura) black; in this example the pronotal patch is small. In the type-example the coloration is as follows:—The interocular space including the clypeus and frontal tubercles black; pronotum completely black; a very narrow basal margin blackish; scutellum dark piceous; underside and tibiæ black, femora piceous with the apices blackish. The elytral patches have not become enlarged. In all other examples before me the underside and legs are wholly brown.

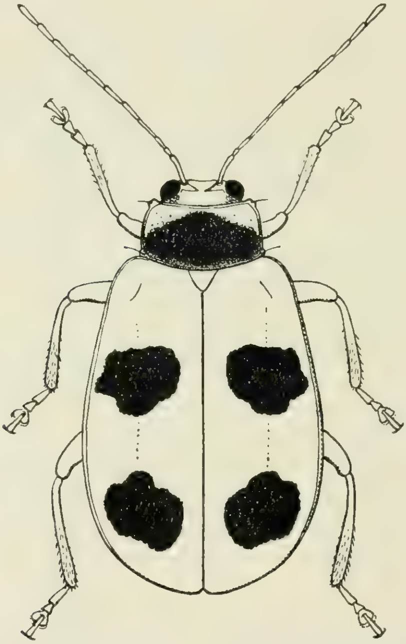

Fig. 103.—*Dercetis nietneri* (Baly).

Head: antenna extending to the middle of elytron; third segment longer than second; fourth somewhat longer than third; fifth somewhat shorter than fourth; fifth to seventh equal; from the eighth to the end the segments are nearly equal to one another; the last sharply pointed. *Prothorax* smooth, impunctate but for a few round, deeply impressed, fairly large punctures on the lateral sloping area on each side; besides these some very fine and scattered punctures are visible under a high magnification. *Elytra*: the punctures on the sutural areas tend to arrange themselves in longitudinal rows. *Underside*: epipleuron with sharp margins both on the inner and outer sides, abruptly narrowed behind the middle and continued very narrowly to the apex.

Length of type-example, 6 mm.; *breadth*, 4 mm.

Length, 7 mm.; *breadth*, 4·5 mm.

Distribution. Ceylon: Balangoda, 1,776 ft., 13–16. iii. 1882 (*G. Lewis*).

Type in the British Museum.

174. **Dercetis collina** Weise.

Dercetes collina Weise, in Junk & Schenkling, Coleopt. Catalogus, pt. 78, Berlin, 30. v. 1924, p. 144.
Antipha bifasciata Jacoby, Ann. Soc. Ent. Belg. xlviii, 1904, p. 399.

Body oblong, parallel-sided, with the apex broadly rounded. There is a great deal of variation in the coloration of this species. Three colours, metallic greenish blue-black, piceous and brown, are distributed in various ways on parts of the body. The elytra may be entirely blue-black or they may be entirely brown. In one example they are pure blue. The breaking up and disappearance of the elytral colour takes place in a longitudinal direction—that is to say, first a brown stripe appears along the middle on each elytron, arising from the basal margin but not reaching the apical; secondly, it widens till it covers the whole elytron; thirdly, the epipleuron also begins to become lighter; fourthly, the apex shows signs of the lighter colour and, spreading in front, joins the stripe. The pronotum and scutellum are brown, pitch-brown or black, but never metallic blue-black; the pronotum may have darker ill-defined patches. The head varies from black to brown through intermediate stages. The antennæ are always blackish, with the two or three basal segments diluted in places. The underside varies from blackish to brown, the various parts assuming different shades without any correlation with each other.

Head: antenna extending to the middle of the elytron or sometimes a little shorter; second segment always much shorter than third; third slightly shorter than fourth in the longer antenna but equal to fourth in the shorter antenna, and in both cases slightly thinner; fifth somewhat shorter than fourth; fifth, sixth and seventh nearly equal to one another in length and thickness; eighth slightly shorter than seventh; eighth to eleventh nearly equal to one another, the last bluntly pointed; in the shorter antenna sixth slightly shorter than fifth and the rest of the segments onwards equal to one another. *Prothorax*: front and hind margins widely arched ; sides very slightly rounded, with the margins sharp and somewhat explanate ; anterior corners expanded, with the angles acute, posterior obtuse ; upper surface very sparsely covered with minute indistinct punctures. *Elytra* moderately closely and confusedly covered with fairly large and well-impressed punctures. *Underside* : epipleuron abruptly narrowed before the middle and continued very narrowly to the apex.

Length, 6 mm. ; *breadth*, a little over 3 mm.

Distribution. NILGIRI HILLS.

Type in the British Museum.

Different colour varieties of this species seem to occur in Mandar, Bengal, and spread through Assam to Burma, but this has yet to be proved conclusively.

175. **Dercetis posticata** (Baly).

Antipha posticata Baly, Cist. Ent. ii, 1879, p. 455.
Antipha postica Jacoby, Ann. Mus. Civ. Genova, xxvii, 1889, p. 224.

Body comparatively broad. General colour pale brown to deeper brown ; mouth-parts touched with piceous ; eyes black ; apical two-thirds of elytra blue mixed with violet, sometimes the latter colour predominating This patch is in some examples slightly smaller, but never occupies less than half of the elytral surface ; its front border is drawn forwards, this condition being more pronounced in some than in others, in either case the front border is irregular—wavy or slanting ; the blue-violet colour spreads over the edge to the epipleuron, so that the apical portion of the latter shares the metallic colour of the apical elytral patch.

Head comparatively broad. Antenna extending to about the middle of elytron ; each of the segments from the first to seventh is gradually thickened towards the apex, the rest more cylindrical ; third very slightly longer than fourth ; fourth and fifth equal ; sixth slightly shorter than fifth ; sixth and seventh nearly equal ; eighth, ninth, tenth equal to one another ; eleventh somewhat longer, with the apex pointed. *Prothorax* broader than long but not so markedly as in the type-example ; front border without a sharp margin ; lateral margins slightly explanate ; seen under a high magnification surface with sparsely distributed, fine but well-impressed punctures and with the background shagreened. *Elytra* with sparsely distributed, well-impressed punctures which are stronger than those of the pronotum ; lateral margins slightly explanate. *Underside* : epipleuron not so abruptly narrowed at the middle as in some species, continued narrowly to apex.

Length of type-example, 6 mm. ; *breadth*, nearly 4 mm.

Length of other examples, 6·6–7 mm. ; *breadth*, 4–4·5 mm.

Distribution. BENGAL, Mungpu. ASSAM (type-locality). BURMA : Rangoon, Tharrawaddy, Tenasserim (*Doherty*). North Chin Hills.

Type in the British Museum.

This species has a superficial resemblance to some species of *Sebæthe*, a Halticine genus, but structurally it is different.

176. **Dercetis antennata** (Jacoby).

Anthipha antennata Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 973.

General colour fulvous ; posterior half of elytra violaceous-black, anterior margin of the dark portion slightly convex, with the sides oblique.

Head smooth, shining, impunctate ; frontal elevations narrowly transverse. Third segment of antenna twice as long as the second ; fourth more elongate, thicker and subcylindrical : the terminal segments rather thickened and shorter. *Prothorax* twice as broad as long ; sides slightly rounded ; anterior lateral angles oblique ; upper surface rather convex, smooth and impunctate. *Elytra* very closely punctate, the punctures rather larger anteriorly than posteriorly.

This description is taken from a male example.

Length, about 6 mm.

Distribution. BURMA : Rangoon, Bhamo.

Type in the Genoa Museum.

This species resembles *D. posticata* Baly, but differs in having antennæ of different form, the elytral punctation stronger and the dark portion of elytra deeper in colour and extending more forwards, with the anterior margin convex instead of being sinuate as in *D. posticata* Baly.

I have not seen the type. The above description is taken from Jacoby's original account.

177. **Dercetis flavocincta** (Hope).

Galleruca flavocinta Hope, in Gray, Zool. Miscell. 1831, p. 29.
Antipha flavofasciata Baly, Cist. Ent. ii, 1879, p. 456.
Monolepta flavocincta Hope, Weise, in Junk & Schenkling, Col. Catalogus, pt. 78, 1924, p. 168.

General colour uniformly black, shining. In Hope's type-example the following parts are red-brown :—Head, prothorax, a fairly broad band across each elytron and legs (except tarsi which are fuscous) ; three basal segments of antenna and basal portion of fourth reddish, apical portion of fourth and fifth piceous (the rest broken). In Baly's type-example the colours are distributed as follows :—Head and prothorax, anterior and middle femora, apex of posterior femur yellow-brown ; apex of antenna fuscous ; anterior tibia dorsally, anterior and middle tarsi and penultimate segment of posterior tarsus piceous. The head is always darker brown ; in several examples in the collection of the British Museum there is evidence that this dark colour of the head is diluted red—a characteristic of Hope's type. Six basal segments of antenna light brown to darker brown, seventh and eighth generally of the same colour as the basal segments but always somewhat mixed with piceous. Legs completely brown to piceous except apices of middle and hind femora which are always brown, front femora very often wholly brown, tarsi always piceous. Sometimes the abdominal sternites are piceous while the rest of the underside is black. At first sight the conspicuous lighter single postmedian band across elytra is a distinguishing feature.

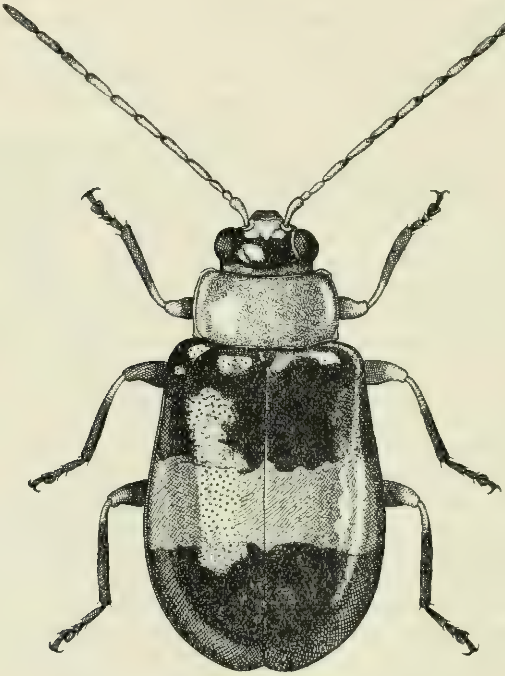

Fig. 104.—*Dercetis flavocincta* (Hope).

Head: antenna extending a little beyond the elytral band; fourth segment much longer than third, sometimes the latter is relatively slightly longer; fifth somewhat shorter than fourth; from the fifth to eleventh the segments are nearly equal to one another, the last three in some aspects appear somewhat more slender; last segment finely pointed. *Prothorax*: under a high magnification a few scattered ill-defined punctures are visible, otherwise impunctate. *Elytra* not closely punctate, the punctures being somewhat finer on the apical area. *Underside*: epipleuron with the outer and inner margins sharp and continued very narrowly to the apex.

Length of Hope's type, 6·5 mm.; *breadth*, a little more than 4 mm.

Length of Baly's type, 5 mm.; *breadth*, a little more than 3 mm.

The other examples before me do not vary much beyond these limits.

Distribution. NEPAL. BENGAL: Buxa Duars. ASSAM: from the plains (*A. W. Chennell*).

Types in the British Museum.

178. **Dercetis mandarensis** (Jacoby).

Antipha mandarensis Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 134.

Antennæ, head, prothorax always pale brown; scutellum pale brown to black; elytra brown to black, the two colours being extreme forms of the following pattern:—Across the middle of each elytron is a fairly broad, pale brown patch which touches neither the suture nor the lateral margin, even when most fully developed; its margins all round are irregular and edged with black which diffuses into the surrounding red-brown colour. In some examples the elytra are red without the admixture of any other colour. In some cases the black is dominant but faintly diluted on the basal and apical regions. Some examples show the pattern intact with all colours concerned very faint. In the possession of an elytral band this species resembles *D. flavocincta*, but can be distinguished by the more regular nature of the band of *flavocincta* and its uniformly black background. Underside and legs usually pale brown, in some cases breast and tibiæ black; in these melanic examples the antennæ are blackish. Epipleuron shares the general background colour of the elytra, its colour varying in intensity according to that of elytra.

Head: antenna extending to the middle of elytron; third segment longer than second; fourth much longer than third; fifth slightly shorter than fourth; from the fifth to the end the segments are nearly equal to one another. *Prothorax*: upper surface impunctate, under a high magnification a few indistinct punctures are visible. *Elytra*: on the basal convex area the punctures are finer, behind the convex area in the depression they are somewhat coarser, and on the apical area they are again finer and sparser; lateral margins with sharp edges. *Underside*: epipleuron with sharp edges both on the inner and outer margins, continued extremely narrowly to the apex.

Length, 4·5–5 mm.; *breadth*, 2·5–3 mm.

Distribution: BENGAL: Mandar (*Père Cardon*).

Type in the British Museum.

179. **Dercetis histrio** (Baly).

Antipha histrio Baly, Cist. Ent. ii, 1879, p. 456.

The colour scheme is as follows:—Mouth-parts and labrum blackish; interocular area in front, including clypeus and tubercles, pale brown; antennæ brown to blackish; a large area on the vertex of head extending from eye to eye black, when the head is withdrawn in the prothorax the lateral brown areas are not visible; prothorax light brown, sometimes very pale; scutellum black. On the elytra, beginning from the base, alternate bands of black, red, black, pale brown, black and red; the first black band along basal margin very short, not extending beyond a transverse line through the apex of scutellum; the second red basal band large, covering the humerus and the basal convex area; the third postbasal black band short, with its front margin fairly even and its hind margin wavy, in some cases the two waves encroach on the next light area; the fourth median band always light brown and of varying length, determined by the extent of the postbasal and postmedian black bands; the latter (fifth band) with its front and hind margins uneven, the front having spurs which encroach upon the median band and sometimes meet the similarly elongated wave-crests of the hind margin of postbasal black band, thus dividing the median light band into three unequal segments; these black bands do not stain either the suture or the extreme lateral margins; the last (sixth band) covers the whole of the apical elytral area, its extent being regulated by the preceding black band. Underside in the type-example entirely red except the prothorax which is always pale brown; underside in other examples varying from brown to piceous and sometimes with black or blackish patches. Front leg almost always pale brown, but in the most melanic examples the tibia and tarsus piceous; middle and hind legs generally piceous except the points of articulation between the various segments, where some portions are lighter; tarsi usually lighter. The red colour sometimes becomes diluted and is almost brown;

even in cases where this happens this brown can be distinguished from those parts which are always pale brown.

Head : in the male antenna somewhat stouter, extending nearly to the postmedian band, in the female more slender and slightly longer ; in the male second and third segments very small, globular, equal, from the fourth the segments are somewhat expanded inwards and nearly equal to one another in length ; in the female third segment comparatively much longer than the second, fourth about twice as long as the third, from the fourth the segments are nearly equal to one another in length, the last sharply pointed. *Prothorax* : seen under a high magnification a few scattered, fine and indistinctly impressed punctures. *Elytra* : there is a tendency to longitudinal seriation in the punctures. *Underside* : epipleuron with both the inner and outer sides sharply margined, continued extremely narrowly to the apex.

Secondary sexual characters. In ♂ (1) antenna different from that of ♀ (see above), the second and third segments very minute, (2) body somewhat smaller. In the ♀ third segment of antenna longer than second ; body larger.

Length of Baly's type-example (♀), 5·5 mm. ; *breadth*, 3·5 mm.

Length of other examples, 4·5–5 mm. ; *breadth*, 2·5–3 mm. ; the lowest measurements are those of a male example.

Distribution. ASSAM (type-locality). SYLHET.

Type in the British Museum.

180. **Dercetis feæ** (Jacoby).

Anthipha feæ Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 973.

Body ovate as in the genotype. Upper side of head behind the transverse impression between the eyes black ; antennæ piceous with the three basal segments diluted in places ; prothorax brown ; three blackish bands across elytra, one basal, one postmedian and the third apical ; these bands may be large, when this is the case the margins all round and the suture are piceous to blackish and the marginal colour covers the epipleuron also, but in their reduced condition only the basal band extends to the epipleuron, part of the epipleuron remaining brown. Breast black ; abdominal sternites brown ; legs brown, in the most melanic cases the tibiæ are piceous. In one example when the bands are in a reduced condition the head is completely black but the labrum is light brown.

Head : antenna fine, slender, extending to a short distance beyond the middle of elytron ; third segment somewhat longer than second ; fourth much longer than third ; fifth somewhat shorter than fourth ; fifth to eighth nearly equal to one another ; ninth slightly shorter than eighth ; ninth, tenth and eleventh nearly equal to one another, the last with a delimited pointed end. *Prothorax* much broader than long; front and hind margins slightly arched; lateral margins slightly rounded, with sharp and reflexed edges; upper surface very gently convex, very sparsely covered with fine punctures, with a few coarse ones on the sloping lateral areas. *Elytra* fairly closely covered with confused punctures. *Underside*: epipleuron abruptly narrowed before the middle and continued extremely narrowly to the apex.

Length, 5 mm.; *breadth*, 3 mm.

Distribution. BURMA: Pegu, Palon, viii.–ix. 1887 (*Fea*); Toungoo; Shwegyin. SUMATRA: Rambe, xii. 1890–iii. 1891 (*E. Modigliani*).

Type in the British Museum.

181. **Dercetis lævicollis** (Jacoby).

Anthipha lævicollis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 974.

General colour black; upper surface metallic violaceous, with the pronotum dark blue; antennæ obscure piceous, with the four apical segments yellow-brown; abdomen yellow-brown.

Head impunctate. Antenna filiform; third segment twice as long as the second; fourth and fifth equal. *Prothorax* nearly three times as broad as long; sides very slightly rounded at the middle; anterior angles oblique, produced outwards; upper surface convex, entirely impunctate. *Scutellum* large, smooth. *Elytra*: basal area slightly raised and bounded by a transverse depression; very closely and strongly punctate, the punctures having a tendency to form longitudinal rows.

Length, 6 mm.

Distribution. BURMA: Karen Mts. (*Fea*).

Jacoby described this species from a single example.

Type in the Genoa Museum.

Resembles *D. flaviventris* Jac. from China, but differs in having a strongly transverse pronotum and differently coloured antennæ.

182. **Dercetis bretinghami** (Baly).

Antipha bretinghami Baly, Ann. Mag. Nat. Hist. (5) iv, 1879, p. 118.

General colour brown; eyes black; antennæ (except the two basal segments which are pale brown) piceous; scutellum, suture narrowly, and lateral and apical margins of elytra, including the epipleura, dark pitch-brown ; most of the breast dark pitch-brown ; abdominal sternites darker brown than upper side.

Head : antenna fairly long and slender, extending beyond the middle of elytron ; second segment much shorter than third ; fourth much longer than third ; fifth shorter than fourth ; from the fifth to the end the segments are nearly equal to one another, the last with the apex somewhat elongated and pointed ; the antenna except the three basal segments thickly covered with hairs. *Prothorax* : seen under a high magnification background finely shagreened, a few indistinctly impressed punctures at each side on the sloping surface in front. *Elytra* confusedly punctate, punctures well impressed and fairly large, a few along the sutural areas with a tendency towards a serial longitudinal arrangement. *Underside* : epipleuron with both inner and outer edges sharp, abruptly narrowed before the middle and continued very narrowly to the apex.

Length, 4·5 mm. ; *breadth*, 2·5 mm.

Distribution. INDIA. No other particulars are available.

Type in the British Museum.

There are several specimens exhibiting this type of coloration in the collection of the British Museum, one of which bears on the identification label "*Antipha modesta* Jacoby " in Jacoby's own handwriting. I believe this to be a manuscript name, for I am unable to trace it to any publication. I have compared Jacoby's specimen with Baly's type, and I believe that they belong to the same species. In Jacoby's example the dark colour is more intense and the tibiæ also are black. There are three examples from Mandar, Bengal, five from Nilgiri Hills and two from Shwegyin, Burma. In some of these are signs of the dark colour spreading over the elytra.

183. **Dercetis shona** sp. nov.

Body oblong, rounded towards the apex. General colour red to pale brown (the specimen before me with the latter colour has the integument soft ; it is probable that it is an undeveloped example), with intermediate stages of pattern produced by the discharge of the red colour ; antenna light brown, legs light to dark brown, in specimens with the fully developed red colour the legs are dark brown but do not attain the general colour ; in the lighter specimen the legs share the general colour of the body. In the example in which the red colour begins to be discharged a banded condition is produced with two broad bands across the elytra, one basal and one median.

Head with the vertex convex, impunctate, under a high magnification a fine longitudinal median line and lateral striations can be detected ; deep depression in the middle in front ; transversely impressed line from eye to eye behind the tubercles not very deep ; frontal tubercles oblique, moderately raised, surface with one or two punctures ; clypeus broadly raised, surface sparsely punctate ; labrum broader than long, with the front margin rounded and slightly emarginate in the middle ; mandibles large. Antenna very slender, extending to the middle of elytron ; second segment small, rounded ; third rather more than twice as long as second ; fourth much longer than third ; fifth shorter than fourth but longer than third ; from the fifth to tenth the segments are nearly equal to one another ; eleventh slightly longer than tenth, bluntly pointed. *Prothorax* much broader than long ; hind margin more arched than the front margin ; sides gently rounded, the margins sharp and reflexed ; front corner thickened, the seta-bearing pore large and situated at the angle ; hind corner obtuse, the seta-bearing pore also large and situated at the angle ; upper surface very gently convex, the middle area impunctate, but on each side a few scattered punctures some of which are stronger than others. *Scutellum* sharply triangular, middle portion raised. *Elytra* broader at base than the prothorax ; humerus strongly raised, the surface impunctate ; a certain basal area convex ; confusedly and fairly closely punctate, punctures with a tendency to form longitudinal rows. *Underside* sparsely covered with fine hairs ; epipleuron abruptly narrowed before the middle and continued narrowly to the apex.

Length, 6·5 mm. ; *breadth*, 4 mm.

Distribution. ASSAM : one example from the valley and four from the Patkai Mts. (*Doherty*).

Type in the British Museum.

Described from five examples.

184. **Dercetis flavescens** (Allard).

Antipha flavescens Allard, Comptes-Rendus Soc. Ent. Belg. xxxiii, 1889, p. cix.

Body ovate, fairly broad. Entirely shining brown which varies from a pale to a darker shade ; in the most melanic example before me the scutellum and the central and lateral portions of breast are black and the extreme apical margins of elytra are touched with piceous, similarly the four or five basal segments and three apical segments of antenna are partly black or blackish. It seems to me that these are remnants of a greater degree of suffusion of black, a view which has some support from the fact that in this genus we may have in a single species variations of extremes of colour-pattern with numerous intermediate stages.

Head: frontal tubercles not very prominent. Antenna extending nearly to the middle of elytron; third segment longer than second; fourth longer than third; fourth and fifth nearly equal; sixth slightly shorter than fifth; from the sixth to eleventh the segments are nearly equal to one another, the last pointed. *Prothorax*: surface impunctate but for a few large punctures on the lateral sloping part; the setæ at the corners very long. *Scutellum* with the apex sharp. *Elytra* closely and confusedly punctate. *Underside*: epipleuron very narrowly continued to apex, both edges sharp, abruptly narrowed before the middle.

Length, 5·5–7·5 mm.; *breadth*, 3·5–4·5 mm. According to Allard the measurements are:—*Length*, 6·5 mm.; *breadth*, 4 mm.

Distribution. CEYLON: Peradeniya, ix. 1907; Kandy, v. & x. 1907.

Type in the Brussels Museum. There are many examples in the British Museum.

185. **Dercetis inornata** (Jacoby).

Anthipha inornata Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 972.

General colour brown; head, antennæ, thorax and legs lighter brown.

Head broad, impunctate. Frontal elevations narrowly transverse. Eyes prominent, large. Antenna two-thirds the length of the body, second segment very short; third three times as long as second; fourth twice as long as third; the following segments elongate and slender. *Prothorax* more than twice as broad as long; sides nearly straight; anterior angles oblique; posterior margin rather rounded; upper surface with a very few fine punctures *Scutellum* impunctate. *Elytra* wider at base than the prothorax; basal area without depression; upper surface closely and finely punctate, the punctures forming longitudinal rows. *Underside*: first segment of the posterior tarsus as long as the following segments together.

Length, 4 mm.

Distribution. BURMA: Karen Mts. (*Fea*).

Type in the Genoa Museum.

Resembles *D. bretinghami* Baly, but differs in having an entirely brown underside and brown scutellum and elytra and in having the elytral punctures finer.

I have not seen the type. The above description is taken from Jacoby's original account.

186. **Dercetis orientalis** (Jacoby).

Antipha orientalis Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 400.

Antennæ, prothorax and underside pale to dark brown; a large area on the vertex of head extending from one eye to the other and delimited in front by the tubercles black; when the head assumes its normal position of repose and is withdrawn in the prothorax the reddish colour of the neck cannot be seen from above; front of the head, including clypeus, bases of antennæ and the interocular space anterior to the tubercles brown; a fairly broad marginal band at the base of elytra, including the scutellum, black; elytra brown to red. The elytral band at the basal margin is extremely ill-defined; owing to its colour it is prominent when the elytral surface is brown, but it never loses its identity even when the elytra are deep red.

Head: antenna slender, extending beyond the middle of elytron; third segment longer than second; fourth much longer than third; fifth very slightly shorter than fourth; from the fifth to eleventh the segments are nearly equal to one another, the last bluntly pointed. *Prothorax*: upper surface flat, sloping at each side in front, a few large punctures on this sloping part, otherwise the surface is impunctate. *Elytra*: humerus strongly convex; surface not very closely and confusedly punctate, the punctures well impressed and not very large; very slightly explanate at each side, more so towards the base. *Underside*: epipleuron abruptly narrowed behind the middle, continued very narrowly to the apex.

Length, 5 to nearly 6 mm.; *breadth*, 3 to nearly 4 mm.

Distribution. NILGIRI HILLS.

Type in the British Museum.

187. **Dercetis subcærulea** (Jacoby).

Antipha subcærulea Jac., Entomologist, xxiv, 1891, Suppl. p. 33.
Anthipha semicærulea Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 998.

Body broad, ovoid, strongly convex, viewed from the side the highest point of convexity is just behind the middle, sloping down gradually in front and more abruptly behind. Completely shining red-brown, elytra alone with a purplish sheen which is sometimes deeper.

Head: upper surface with faint longitudinal striations and indistinctly punctate; frontal tubercles flattened, with a deep excavation between them; clypeus very broad and flattened, with the surface sparsely and indistinctly punctate; labrum large, broader than long, with the front margin straight and the angles rounded; mandibles large. Antenna long, fine, extending a little beyond the middle of elytron; first segment long, club-shaped; second small; third nearly twice as long as the second; fourth somewhat longer than third; fifth slightly shorter or nearly equal to fourth; fifth, sixth and seventh nearly equal to one another; eighth slightly shorter than seventh; eighth, ninth and tenth nearly equal to one another; eleventh slightly longer than tenth, thickened in the middle and then tapering to the apex; except the first three segments, which have only a few scattered hairs, the whole antenna is covered with longish hairs. *Prothorax* broader than long; front and hind margins arched; sides slightly explanate and reflexed, with the edges sharp; anterior lateral angles thickened and expanded, posterior slightly obtuse; hind margin for a short distance towards the corner slightly reflexed; upper surface shares the general slope of the front part, smooth, seen under a high magnification very sparsely covered with a mixture of finer and comparatively coarser punctures. *Scutellum* smooth and impunctate. *Elytra* slightly broader at the base than the prothorax: humerus convex, sparsely covered with fine punctures; basal area gently convex; surface fairly closely covered with well-impressed punctures which are deeper and somewhat larger on the basal area on each side of the suture than on the apical region, where they are comparatively less coarse. *Underside* sparsely covered with fine hairs; epipleuron with both the inner and outer edges sharply margined, abruptly narrowed behind the middle and continued very narrowly nearly to the apex; legs fairly stout and short, hind tibia slightly longer than either the front or middle tibia, first segment of hind tarsus somewhat longer than either the front or middle tarsus, claws appendiculate.

Length, 7·25 mm.; *breadth*, 5·5 mm.

Distribution. ASSAM (type-locality); Khasi Hills; Sadyia; Patkai Mts.; Manipur; Sylhet. BURMA: Momeik (*Doherty*). SIAM.

Type in the British Museum.

188. **Dercetis miniaticollis** (Hope).

Galleruca miniaticollis Hope, in Gray, Zool. Miscell. 1831, p. 29.
Monolepta miniaticollis Hope, Weise, in Junk & Schenkling, Col. Catalogus, pt. 78, 1924, p. 170.

Body oblong, very slightly broadening at the middle, then gradually narrowing towards the apex; this is unlike the form of the genotype. In Hope's type the coloration is as follows:—Head and antennæ brown, a small ill-defined area on the vertex and one on each side blackish; pronotum red-brown with large areas in the middle and at the sides blackish, these blackish areas are so large that they almost cover the entire pronotal surface; scutellum and elytra black; underside black, legs brown except the tibiæ and tarsi which are piceous, the basal portions of tibiæ brown. In other examples all parts are brown except the scutellum, elytra and underside, although in some cases the abdominal sternites show signs of becoming brown near the lateral edges ; in some examples the sternites are almost entirely brown. In one example at least the elytra are piceous.

Head : antenna long and slender, extending beyond the middle of elytron ; third segment more than twice as long as the second ; fourth much longer than third ; fourth, fifth and sixth nearly equal to one another ; seventh shorter than sixth ; seventh and eighth equal ; ninth slightly shorter than eighth ; ninth, tenth and eleventh nearly equal to one another, the last with a distinctly delimited pointed end. *Prothorax* : front and hind margins gently arched ; sides very slightly rounded, with the margins reflexed ; anterior lateral angles swollen, this swollen part having the seta-bearing pore ; posterior lateral angles obtuse ; upper surface very sparsely covered with fine punctures, some punctures on the lateral sloping area larger. *Elytra* confusedly and fairly closely covered with well-impressed punctures which are larger on the middle area than on the apical, where they have become finer. The punctures on the sutural areas tend to form longitudinal rows. *Underside* : epipleuron abruptly narrowed before the middle and continued extremely narrowly to the apex.

Length of type-example, 6 mm. ; *breadth* of same, 3·5 mm.

Distribution. NEPAL (Hardwicke bequest).

Type in the British Museum.

189. **Dercetis wallardia** sp. nov.

Body oblong, rounded towards the apex. Underside, legs, prothorax and scutellum black ; elytra blue ; head black, with a large ill-defined area behind the frontal tubercles red-brown, labrum lighter brown ; antenna pitch-black with three or four basal segments lighter.

Head with the brown area deeply impressed in front and very finely and sparsely punctate ; frontal tubercles convex, impunctate, oblique and separated from the area behind by two deep and oblique impressions ; clypeus broadly convex in the interantennal space, sparsely covered with very fine punctures ; labrum broader than long, with four round pits and a few long hairs on the surface ; mandible large. Antenna extending to about the middle of elytron ; second segment rounded ; third twice as long as the second ; fourth thicker and slightly longer than third ; fifth shorter than fourth ; fifth, sixth and seventh equal to one another ; eighth, ninth and tenth equal to one another ; eleventh with the end pointed and slightly longer than tenth. *Prothorax* broader than long, with the basal margin more strongly curved than the front margin ; sides straight, oblique, margins slightly reflexed ; front corner expanded, with the angle acute ; hind corner with the basal margin near it slightly reflexed and with angle acute ; the seta-bearing pore at each corner situated slightly away from the angle ; setæ long ; upper surface smooth, gently convex from side to side, sparsely covered with fine punctures distinctly visible under a high magnification. *Scutellum* : upper surface convex, smooth, impunctate. *Elytra* broader at base than the prothorax ; humerus moderately convex, with the surface having a few scattered punctures ; upper surface fairly closely and confusedly covered with moderately large and well-impressed punctures. *Underside* sparsely covered with fine hairs ; epipleuron with both inner and outer edges sharp, narrowed behind the middle and gradually and very narrowly continued to the apex.

Length, 6 mm. ; *breadth*, 3·25 mm.

Distribution. TRAVANCORE : Wallardi, 5. ix. 1904 (*R. P. Favre*).

Type in the British Museum.

Described from two examples.

190. **Dercetis travancorensis** sp. nov.

Body oblong, rounded towards the apex. Elytra roughly sculptured and with longitudinal costæ. Head, antennæ, prothorax, underside and legs brown ; scutellum black ; elytra blue ; more shining on the upper side.

Head with the vertex not very convex, with a few scattered punctures ; transverse impression behind the frontal tubercles deep and oblique ; frontal tubercles moderately convex, impunctate ; clypeus broad, surface with a few punctures. Antenna hardly extending to the middle of elytron ; second segment rounded ; third longer than second ; fourth longer than third ; fifth somewhat shorter than fourth, equal to and thicker than third ; fifth, sixth and seventh nearly equal to one another ; eighth more rounded at the ends, eighth to tenth equal ; eleventh with apex pointed, somewhat longer than tenth. *Prothorax* much broader than long ; basal margin more arched than the front ; sides oblique, straight, with the edges sharp ; front corner expanded, with the apex acute ; basal corner obtuse ; upper surface smooth, gently convex, seen under a high magnification with scattered finer punctures on the midde area and ill-defined coarser ones on the lateral areas. *Elytra* somewhat broader at the base than the prothorax ; humerus strongly convex, with the surface smooth and finely punctate ; general sculpturing rough, with four ill-defined longitudinal costæ, of which two nearer the suture are more distinctly raised and continued further towards the apical area; interstitial surface corrugated; confusedly and fairly closely punctate, punctures fine, well impressed. *Underside* sparsely covered with fine hairs; epipleuron with the inner margin sharp, outer rounded, narrowed behind the middle and continued very narrowly to the apex.

Length, 5·5 mm.; *breadth,* 3 mm.

Distribution. TRAVANCORE: Wallardi, 5. ix. 1905 (*R. F. Favre*).

Type in the British Museum.

Described from one example.

191. **Dercetis birmanica** (Jacoby).

Antipha birmanica Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 223.

General colour black; head, two proximal segments of antenna, prothorax and femora fulvous; antennæ obscure fuscous; scutellum piceous; elytra metallic bluish-green.

Head impunctate; frontal elevations strongly developed, bounded by a deep groove behind; clypeus in the form of a triangular ridge. Antenna filiform, extending beyond the middle of elytron; third segment nearly three times the length of second. *Prothorax* subquadrate, scarcely twice as broad as long; each corner with a tubercle; sides rather strongly and evenly rounded, narrowly margined; upper surface transversely convex, impunctate. *Scutellum* with the apex broadly rounded. *Elytra* nearly parallel, convex, closely impressed with small but distinct punctures which become obsolescent towards the apex; lateral areas finely and transversely strigose. *Underside*: first segment of the posterior tarsus as long as the following three segments together.

Length, about 6 mm.; *breadth,* about 2·5 mm.

Distribution. BURMA: Bhamo, May–June 1886 (*Fea*).

Type in the Genoa Museum.

One example, with the label of identification in Jacoby's handwriting, in the British Museum.

The prothorax in this species is comparatively long and more markedly convex.

192. **Dercetis puncticollis** (Jacoby).

Antipha puncticollis Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 221.

Head, prothorax always shining brown; antennæ sometimes wholly brown, sometimes the first segment and six or seven apical segments piceous; scutellum brown or black;

elytra shining blue-black, somewhat diluted with brown, in one example (Burma) a large, ill-defined area behind the middle and common to both elytra brown, showing signs of spreading towards the base, where a small area is more distinctly brown. I would expect some examples to have the elytra completely brown. In two examples, one from Dehra Dun and the other from the Nicobar Islands, the elytra are shining black, but in the latter a small irregular area almost on the apical region and common to both elytra is brown. Underside and legs sometimes completely brown, sometimes legs piceous or blackish, and portions of breast black. In all specimens from Burma, Dehra Dun and the Nicobar Islands the pronotum is punctate.

Head with the vertical area indistinctly, finely and sparsely punctate. Antenna extending a little beyond the middle of elytron, somewhat thicker towards the apex; fourth segment much longer than the third; fifth slightly shorter than fourth; fifth and sixth nearly equal; seventh slightly shorter than sixth; seventh and eighth nearly equal; ninth somewhat shorter than eighth; ninth, tenth and eleventh nearly equal to one another in length, eleventh pointed at the apex; last three segments more rounded in contour; antenna covered with fairly long hairs. *Prothorax*: upper surface sparsely covered with punctures—a feature rare in this genus. *Elytra* fairly closely covered with well-impressed punctures which are larger than those on the pronotum. *Underside*: epipleuron with inner edge sharp, but not outer, continued very narrowly nearly to the apex.

Length, 5–6 mm.; *breadth*, 3–3·5 mm.

Distribution. DEHRA DUN. NICOBAR ISLANDS (Brit. Mus.). BURMA: Bhamo (type-locality), vii. 1886 (*Fea*); Shwego-myo, x. 1885 (*Fea*).

Type in the Genoa Museum.

Two of Fea's examples in the British Museum with the identification label in Jacoby's handwriting.

193. **Dercetis dimidiaticornis** (Jacoby).

Antipha dimidiaticornis Jac., Entomologist, xxiv, 1891, Suppl. p. 33.

Body ovoid, convex, generally not conforming to the characteristic shape of the genotype. Head, three basal segments of antenna, pronotum shining reddish-brown; underside brown; fourth to ninth segments of antenna black, last two segments brown; eyes and scutellum black; elytra shining metallic green.

Head: antenna extending nearly to the middle of elytron; third segment longer than second; fourth much longer than third ; fifth shorter than fourth ; fifth, sixth and seventh slightly thickened and almost equal to one another ; eighth slightly shorter and thinner than seventh ; eighth, ninth, tenth and eleventh equal to one another, the last acutely pointed. *Prothorax* : both front and hind margins arched ; sides slightly rounded, with margins sharp, and more widely reflexed than in other species described here ; anterior lateral angles produced and concave, posterior lateral angles obtuse, within the reflexed margin ; from these angles this reflexed margin gradually narrows and finally vanishes as the middle of the basal margin is approached ; front and basal borders finely margined ; upper surface of the middle area with very fine and scattered punctures, and the lateral sloping area with both coarser and finer punctures, more closely placed than on the middle area ; these characters can be seen only under a high magnification. *Elytra* fairly closely covered with well-impressed and moderately fine punctures. *Underside* : epipleuron abruptly narrowed before the middle, with the surface concave, narrowing considerably posteriorly and vanishing as the apex is approached.

Length, 7 mm. ; *breadth*, 4·5 mm.

Distribution. KASHMIR.

Type in the British Museum.

194. **Dercetis viridipennis** (Duvivier).

Antipha viridipennis Duviv., Comptes-Rendus Soc. Ent. Belg. 1887, p. xlix.

Body oblong, broadened posteriorly. Head, antennæ, prothorax, both on the upper and underside, and legs bright brown ; scutellum, underside and sometimes a patch on the vertex of head black ; elytra, including the epipleura, greenish-blue with golden suffusion ; the proportion in which the three colours are mixed varies, sometimes the golden suffusion predominates, in most cases the blue component is dominant and rarely the green is evident, probably the golden suffusion obscures the greenish tint. Upper side more shining than the underside.

Head with the upper surface impunctate ; frontal tubercles not prominent, with the transverse impression behind deep ; clypeus prominently raised ; labrum broader than long, with the sides rounded, front margin slightly emarginate in the middle, surface somewhat convex ; mandibles large. Antenna long, nearly reaching the apical area of elytron ; first segment club-shaped ; second very small ; third nearly three times as long as second ; fourth longer than third ; fourth and fifth nearly equal ; sixth somewhat shorter than fifth ; in the male the seventh is somewhat bent, expanded towards the apex, which is truncate, and with a specialized surface which is black; but this character varies, sometimes the expansion is not so pronounced, with consequent modification of the specialized surface, but there is always a black portion at the apex to indicate its position; eighth shorter than seventh; eighth, ninth, tenth and eleventh nearly equal to one another, sometimes tenth more slender; eleventh modified having a distinctly delimited conical apex. *Prothorax* broader than long; front margin almost straight, hind margin slightly sinuate; sides nearly straight, margins with sharp edges; seta-bearing pore at each corner prominent, anterior ones more pronouncedly so; upper surface convex, sometimes appearing slightly flattened in the middle, sloping down on each side in front, generally impunctate, but under a high magnification a few well-impressed punctures are visible on the lateral area, especially in front. *Scutellum* smooth, impunctate. *Elytra* broader at base than the prothorax; humerus strongly raised, with the surface impunctate; basal area on either side of the scutellum distinctly convex; confusedly punctate, the punctures large and coarse, especially in the depressed surface behind the basal convexity. On the marginal area the punctures tend to arrange themselves in longitudinal rows; viewed at certain angles longitudinal ribs are visible. In some examples the surface is more rugose on lateral areas than in others. In the female the lateral margins are more explanate and reflexed. *Underside* sparsely covered with fine hairs; epipleuron with the inner margin sharp, outer rounded, narrowed behind the middle and continued extremely narrowly to the apex; in the female, owing to the expansion of the lateral margin, the epipleuron is of equal width almost throughout its length, but is somewhat narrowed towards the apex, where the surface has become slightly concave; the inner margin is sharp and outer rounded as in the male. Legs long, first segment of posterior tarsus longer than the corresponding segment of either the front or middle tarsus, and longer than the two following segments together; claws appendiculate.

Secondary sexual character. In ♂ the seventh segment of antenna is modified. In ♀ the lateral margins of elytra are explanate and reflexed.

Length, 6·5–8 mm.; *breadth*, 4–4·75 mm.

Distribution. BURMA: Bhamo, Ruby Mines (*Doherty*) WESTERN CHINA: Yunnan, between Tentyueh and Tali Fu, 1909–10 (*J. Coggin Brown*).

Type location unknown to me; many examples in the British Museum.

195. **Dercetis picipes** (Baly).

Antipha picipes Baly, Ann. Mag. Nat. Hist. (3) xvi, 1865, p. 251.

Body large, very unusual in the genus. On each elytron a longitudinal, lateral rib, arising behind the humerus and terminating behind the middle, in some aspects finely continued to the apical area. Elytra shining brown ; underside generally red-brown, with some parts lighter ; head and prothorax dark red-brown, with diffused and ill-defined darker patches, labrum lighter brown ; scutellum shares the colour of the elytra ; a fairly broad stripe along each side of the abdomen and patches on the tergites black ; fourth to eleventh segments of antenna black ; femora red-brown, with the underside and portions at the base and apex blackish, tibiæ and tarsi black.

Head : antenna long, slender, extending a little beyond the middle of elytron ; second segment small and rounded ; third nearly twice as long as second ; fourth nearly one and a half times longer than third ; fifth somewhat shorter than fourth ; fifth, sixth and seventh nearly equal to one another ; eighth very slightly shorter than seventh ; eighth, ninth and tenth nearly equal to one another ; eleventh with its drawn out, bluntly pointed apex somewhat longer. *Prothorax* : upper surface flat in the middle area, sloping on each side ; front and hind borders arched ; each side straight, slightly oblique, with sharp edge which is very narrowly reflexed ; front and hind borders finely margined ; hind angle on each side obtuse, front much thickened, with the seta very long ; almost impunctate in the middle area and sparsely covered with fine punctures on each side, some of which are not distinctly impressed. *Elytra* moderately closely and confusedly covered with well-impressed punctures ; each lateral margin with sharp edge. *Underside* : epipleuron narrowed at the postbasal region and continued very narrowly up to the postmedian region, disappearing thereafter.

Length, 10 mm. ; *breadth*, 5·5 mm.

Distribution. INDIA.

Type in the British Museum.

Baly erected the genus *Antipha* on this species.

196. **Dercetis indica** (Duvivier).

Antipha indica Duviv., Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. clv.

Body large, very unusual in the genus. Bright warm brown, shining, but not brilliant ; eyes, antennæ (except four apical segments) and legs piceous to blackish.

Head: antenna almost as long as the body; third segment somewhat longer than second; fourth the longest. *Prothorax*: front border straight; hind border arched; sides straight, slightly oblique; all borders finely margined; upper surface very gently convex, impunctate but for a few fine scattered punctures on the sloping surface at the sides. *Elytra* moderately closely covered with fine and well-impressed punctures; each lateral margin with fine and sharp edge and very slightly explanate, especially towards the apex. *Underside*: epipleuron gradually narrowed posteriorly, and continued to the apex; both edges sharp. First segment of hind tarsus not so long as usual in the genus.

Length, 10·5 mm.; *breadth*, a little over 5 mm. This is the measurement of one example in the British Museum. Duvivier, who writes that he has seen three examples, gives the measurement as 10–11 mm. long and 5·3 mm. broad.

Distribution. SIKKIM.

In the example in the British Museum the antennæ are wanting, a fuller description cannot therefore be given; nor does Duvivier give more than is stated here.

Genus **MONOLEPTA** Erichson.

Monolepta Erichson, Archiv f. Naturgesch. ix, 1, 1843, p. 265; Chevrolat, in d'Orbigny, Dict. Univ. Hist. Nat. (original edition) vi, 1845, p. 5; l. c. viii, 1846, p. 326; Reiche, Voy. Ferret et Galinier Abyss. iii, 1847, p. 402; Joannis, Abeille, iii, 1866, pp. 8 & 156; Weise, Ins. Deutschl. vi, 4, 1886, p. 576; Deutsche Ent. Zeitschr. 1892, p. 400; Archiv f. Naturgesch. lxx, 1904, p. 50; Baly, Journ. Linn. Soc. Lond. 1888, p. 163; Bedel, Col. Bass. Seine, v, 1892, p. 158; Reitter, Fauna Germ. iv, 1912, p. 136.

Luperodes Motsch., Études Entomologiques, vii, 1858, p. 102.

Ochralea Clark, Ann. Mag. Nat. Hist. (3) xv, 1865, p. 144; Chapuis, Gen. Col. xi, 1875, pp. 235, 236; Harold, Stett. Ent. Zeit. xli, 1880, p. 148; Baly, Ent. Monthly Mag. xxiii, 1887, p. 269.

Candezea Chapuis, Ann. Mus. Civ. Genova, xv, 1879, p. 24; Jacoby, Ann. Mus. Civ. Genova, xxiv, 1886, p. 116; Weise, Archiv f. Naturgesch. lxx, 1904, p. 50.

Damais Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 118.

The genus *Damais* is monotypic, and it must in my opinion be regarded as a synonym of *Monolepta*. Since I do not recognize the value of the coxal cavity character the genus *Luperodes* has also been synonymised with *Monolepta*. I have included in *Monolepta* some species of the genus *Luperus* Geoffroy ('Histoire des Insectes,' i, 1762, p. 230) because they appear to me obviously to belong to it. Others, about which I am not able to express any opinion, are simply recorded.

Genotype, *Galeruca* (*Monolepta*) *pauperata* Erichson (Angola, Africa) *. When erecting this genus Erichson had one species before him.

The genus *Monolepta* is large, containing about 400 species from the tropical regions of the world. Erichson separated this genus on the following characters:—The pronotum without a transverse depression; the first segment of the hind tarsus very long; the claws appendiculate; and the third segment of antenna short. Many species are now included which do not conform to all of these characters. So far as our species are concerned several have been at one time included in the genera *Luperodes* or *Luperus* and then been transferred to *Monolepta* and *vice versa*. This indicates that entomologists have not yet formed clear ideas about the limits of the genus. No attempt has yet been made to study the genus as a whole, most of the studies hitherto made being based on regional faunas.

In order to facilitate identification of the species occurring within our faunistic limits I have divided them into two groups: (1) those that have no depressions on the pronotum, and (2) those that have, the latter being treated in the next section of the present work. So far as this genus is concerned, I do not wish to propose new names for genera or subgenera, for that would only introduce further confusion, and more definite ideas will emerge when more information has accumulated. Under the circumstances the method that I have adopted appears to me to be the best that could be done.

Compare the characteristic of Galerucinæ in having a large genus in which the insects have a long first segment of hind tarsus with that of Halticinæ in which a similar condition occurs in the large genus *Longitarsus*.

The following description of the genus is based on the genotype:—Body ovate, moderately convex, gradually narrowed anteriorly and posteriorly, length varying from 5–7 mm. and breadth from 2·5–3·5 mm. Upper surface smooth without any roughness, or elevations or depressions, finely punctate and shining without being brilliant.

Head together with the eyes as broad as the front border of prothorax, somewhat narrowed in front; vertex not very convex, sparsely punctate, punctures fine but well impressed; interocular space flattened, with a depression in the middle;

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* Although the species representing the genotype does not occur within our faunistic limits I have given a figure of it in order to convey an idea of the form and other structures. I have not lost sight of the fact that these volumes are used by entomologists who study fauna other than our own.

frontal tubercles obsolete, but their position can be recognized by a longitudinal impression between them; clypeus convex but not strongly so, sparsely covered with punctures and fine longish hairs; labrum large, broader than long, with the front margin rounded and slightly emarginate in the middle, surface with a few fine and long hairs; mandibles not very large, almost completely covered by the labrum; maxillary palpus fairly long, with the apical segment comparatively long and sharply pointed. Eyes large. Antenna slender, extending to the middle of elytron or beyond; first segment long and club-shaped; second very short; third also short, but somewhat longer than second; fourth nearly twice as long as second; the segments following nearly equal to one another, with slight variations. The structure of the antenna varies in the two sexes. *Prothorax* broader than long, somewhat narrowed in front; posterior margin more rounded than the anterior; each lateral margin straight, slightly reflexed, with the edge sharp; at each anterior angle the margin thickened, with a seta-bearing pore; each posterior angle sharp, obtuse, also

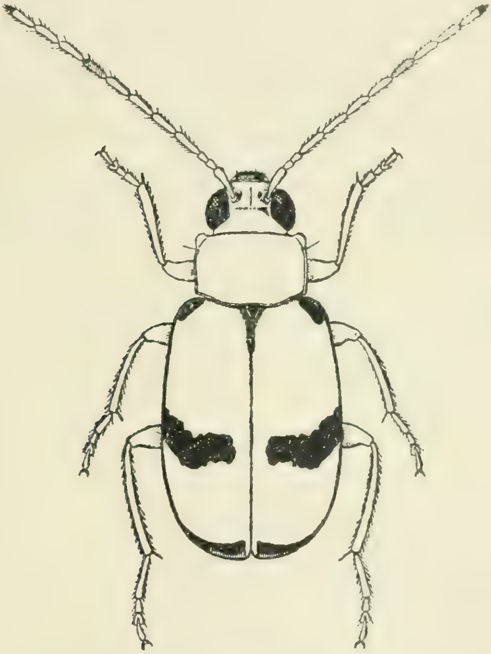

Fig. 105.—*Monolepta pauperata* (Erichson).

with a seta-bearing pore; upper surface smooth, convex from side to side, sloping down on each side and in front, fairly closely and finely punctate. *Scutellum* sharply triangular, surface flat, smooth and impunctate. *Elytra* hardly broader at base than the prothorax, gradually widening behind and again narrowing towards the apex; humerus not prominently convex; margins very slightly reflexed, with the edges sharp; upper surface smooth, fairly closely, finely and confusedly punctate. *Underside* sparsely covered with very fine and short hairs; epipleuron broad in the basal portion, becoming narrower behind the middle and continued very narrowly to the apex. *Legs* fairly long, slender; femora slightly thicker than tibiæ; all tibiæ slightly bent inwards, especially near the base, front tibia nearly equal to middle tibia, hind tibia longer than either the front or middle tibia, with an apical spine; front tarsus equal to middle tarsus, first segment of hind tarsus long, sometimes very long, longer than the following segments together and sometimes nearly half of hind tibia; second segment of any tarsus always short; third feebly bilobed; the claw-segment long, projecting much beyond the bilobed segment; claws strong and appendiculate.

Distribution. SOUTH FRANCE. PORTUGAL. SPAIN. AFRICA. MADAGASCAR. TURKESTAN. TRANSCASPIAN REGION. INDIA. BURMA. CEYLON. MALAY PENINSULA. JAVA. SUMATRA. AUSTRALIA. NEW GUINEA. ARU ISLANDS. PHILIPPINE ISLANDS. COCHIN-CHINA. JAPAN. MEXICO. PANAMA. HONDURAS. GUATEMALA.

Species without depression on the pronotum.

Key to the Species.

1.	Insect always less than 6 mm. in length . .	2.
	Insect always 6 mm. or over in length	43.
2.	Posterior tarsus very long, as usual in *Monolepta*	3.
	Posterior tarsus not as usual in *Monolepta*.	50.
3.	Elytra completely unicoloured, not even the margins or suture with different colour	4.
	Elytra not unicoloured	18.
4.	Insect black; antennæ, tibiæ and tarsi bright brown; 2·5× 1·5 mm.	*M. assamensis* (Jac.), [p. 381.
	No such combination of characters	5.
5.	Insect pale yellowish-brown, elytra whitish, vertical area of head blackish; a little over 3× 1·5 mm.	*M. sodalis* Ws., p. 382.
	No such combination of characters	6.
6.	Insect yellow-brown; vertical area of head not blackish; 4× 2·5 mm.	*M. plenus* Ws., p. 382.
	No such combination of characters	7.

7.	Insect black to piceous; head and prothorax reddish to reddish-brown; 3× 1·5 mm.	*M. semirufa* Ws., [p. 383.
	No such combination of characters	8.
8.	Insect brown; two diffused patches on pronotum; scutellum, legs, clypeus and labrum smoky; 5× 2·5 mm.	*M. bimaculicollis* [Jac., p. 384.
	No such combination of characters	9.
9.	Pronotum with slight rugosity or irregular wrinkles	10.
	Pronotum without such structure	11.
10.	Insect entirely pale brown; 5 mm. long.	*M. feæ* (Jac.), p. 384.
	Insect dark brown, head and prothorax light brown; 4 mm. long	*M. subrugosus* (Jac.), [p. 385.
11.	Insect pale yellowish-white, somewhat elongate; 5·5× 2·5 mm.	*M. semialba* Jac., [p. 385.
	No such combination of characters	12.
12.	Viewed from the side, body strongly hump-backed, with great depth; general colour brown; 3·5–4× 2–2·25 mm.	*M. longitarsis* Jac., [p. 386.
	No such combination of characters	13.
13.	Insect shining brown; basal segment of antenna piceous, rest black; tibiæ and tarsi blackish; 5× 2·5 mm.	*M. kanarensis* Jac., [p. 388.
	No such combination of characters	14.
14.	Insect pale brown, head with the upper side behind the interocular line blackish, antennæ and legs piceous; breast darker brown; hind tarsus about half of hind tibiæ; 5·5× 3 mm.	*M. andrewesiana* nom. [nov., p. 388.
	No such combination of characters	15.
15.	Insect pale brown; breast black; hind tarsus nearly three-quarters of hind tibia; 5·5× 3 mm.	*M. pallida* (Jac.), [p. 389.
	No such combination of characters	16.
16.	Insect generally brown; antennæ pale brown with the apical segment black; scutellum and elytra black; nearly 4 mm. long.	*M. flavofasciata* Jac., [p. 389.
	No such combination of characters	17.
17.	Body ovate, convex; underside light brown, upper side darker brown; head black; apical segments of antennæ smoky; 2·8–3 mm. long	*M. conformis* Ws., [p. 390.
18.	Surface of elytra without markings; basal, lateral margins or suture or all of them together stained darker than general colour	19.
	Elytra differently characterized	23.
19.	Lateral margins of elytra black; antennæ extend beyond the body; a little over 4 mm. long	*M. longicornis* (Jac.), [p. 390.
	No such combination of colours	20.
20.	Basal margin of elytra broadly stained.	21.
	Basal margin of elytra very narrowly stained	22.
21.	Basal margin stained with black, posterior edge of band uniform; 5·25× 3 mm.	*M. singhalesorum* Ws., [p. 391.

Basal margin stained with red edged with black, posterior edge of the band concave; 5·5× 2·25 mm. .... *M. basicincta* Ws., [p. 391.

22. Extreme basal margin and suture of elytra black; scutellum piceous; elytra paler; a spot between the eyes, and tibiæ black; 4 mm. long .... *M. clypeata* Jac., [p. 392.

Margins all round very narrowly stained; elytra not paler; head black; tibiæ and tarsi blackish; 4× 2 mm. .... *M. submarginata* Ws., [p. 392.

23. Margins all round, suture and a postmedian band on elytra black; 4·5× 2·5 mm. ... *M. tenasserimensis* [sp. n., p. 393.

Elytral colours present variation in shades, though distinctly marked yet without any well-defined limits between them .. 24.

Elytra with longitudinal stripes .... 26.

Elytra with spots and patches .... 28.

Elytra with transverse bands .... 35.

Elytra with more complicated pattern .. 39.

24. Elytra red-brown, with a nearly triangular paler basal area, apex of triangle directed posteriorly; 5× 3 mm. .... *M. impressipennis* [(Jac.), p. 394.

Elytra with different markings .... 25.

25. Elytra red-brown, the basal area much darker although without well-defined limits; a strong contrast between pronotal and elytra colours; 5× 3 mm. .. *M. flavicornis* (Jac.), [p. 394.

No contrast between pronotal and elytral basal colour; nearly half or more than half of the basal portion of elytra dark red, rest of the elytral area lighter with a tendency to form a longitudinally ovate patch, suture dark red; a little less than 6× 2·5 mm. .... *M. eunicia* sp. n., [p. 395.

26. Elytral stripe with the margins undulate; 3·75× 2 mm. .... *M. nigrobilineata* [(Mots.), p. 396.

Elytral stripe straight, the margins not undulate .... 27.

27. Pronotum with a median longitudinal stripe; a little over 2 mm. long .... *M. javana* Jac., p. 397.

Pronotum without stripe, unicoloured; 3 × 1·5 mm. .... *M. lineata* Ws., p. 398.

28. General colour brown; apical portion of elytra piceous with a pale yellowish-brown spot in the middle; 4 mm. long. . *M. oculata* Ws., p. 399.

No such combination of characters ...... 29.

29. General colour black; each elytron with two round white spots, one before and the other behind the middle; 3 mm. long.............................. *M. albomaculata* [nom. nov., p. 399.

No such combination of characters ...... 30.

30. General colour black; each elytron with a large transversely ovate median patch; 5·5× 3 mm. .... *M. ornata* (Jac.), [p. 400.

No such combination of characters ...... 31.

31. General colour brown; each elytron with two black patches, one basal and the other (which is large) apical; 5 ×2·75 mm. *M. khasiensis* Ws., [p. 400.

No such combination of characters ...... 32.

32.	General colour brown ; a small humeral patch and a median variable patch on each elytron ; 4–5× 2–2·5 mm.........	*M. bimaculata* Hornst., [p. 401.
	No such combination of characters	33.
33.	General colour brown ; a short sutural stripe terminating before the middle, a nearly transversely ovate patch behind the middle on each elytron, a short lateral marginal stripe from the humerus ; 2·5–3 × 1·5 mm.	*M. cardoni* Jac., p. 402.
	No such combination of characters	34.
34.	Eyes surrounded by black, suture black for a short distance ; 5·5–7·5× 3–3·5 mm.	*M. duodecimmaculata*, [Jac., p. 403.
	Eyes not surrounded by black, often with black spot on the vertical surface of head, suture black in its entire length ; 3·25–5 × 1·75–3 mm.	*M. scripta* Mots., [p. 403.
35.	Black bands alternate with brown ones ..	36.
	Bands with more than two colours	37.
36.	Elytra with basal black, brown, black, brown and apical black bands, five in all ; 4·5–6× 2·5–3·5 mm..................	*M. cavipennis* Baly, [p. 405.
	Elytra with basal black, brown, black and apical brown bands, four in all ; 3× 2 mm.	*M. birmanensis* Jac., [p. 405.
37.	Background colour reddish-brown, basal band narrowly black, postmedian slender band yellowish-white, latter edged with black in front and behind ; a little over 4 mm..............................	*M. gestroi* Jac., p. 406.
	No such combination of characters	38.
38.	Elytra with extreme basal black, red, black, yellowish-brown, black and apical red bands ; 4·5× 2·5 mm.	*M. orientalis* Jac., [p. 407.
	Elytra with basal band black having red portions, postmedian dark red oblique band on each elytron, the margins of the band ill defined, diffuse ; 3·5–4× 2–2·25 mm.	*M. bifasciata* Hornst., [p. 408.
39.	The colour band of the basal margin of elytra covering the scutellum and a certain area beyond it, a postmedian band from the suture to the lateral margin, an apical band continuous with a narrow marginal stripe all round, and suture narrowly black or piceous ; 3× 2 mm.	*M. trifasciata* Jac., [p. 409.
	No such combination of characters	40.
40.	Elytra pale brown with a black pattern as follows :—Margins all round narrowly stained, a stripe along suture, humerus completely covered, a median transverse band extended considerably in a longitudinal direction (sometimes occupying a large portion of the elytral surface) and an apical patch ; all markings completely united with one another, the black colour being continuous ; 3·5× 2·5 mm...	*M. signata* Oliv., [p. 410.
	No such combination of characters	41.

41. General colour brown; elytra with the black pattern as follows:—Basal margin, humerus, basal half of lateral margin, a median band across both elytra and basal half of suture; all these parts continuously stained, without a break anywhere, so that the effect of the pattern is that a basal brown area on each elytron is isolated; there is some variation but the pattern retains its characteristic feature; 4·5× 2·5 mm. .. *M. hieroglyphica* Mots., [p. 411.

No such combination of characters ...... 42.

42. Elytra with the following pattern of yellow-brown and black markings:—Margins all round, including the base, sides and the apex, and the suture with black stripe; a median band extending from side to side crossing the suture; a postmedian band on each elytron commencing at the side extends to the middle only and does not reach the suture; a longitudinal stripe from the humerus to the median transverse band on each elytron divides the basal brown background colour of elytron into two longitudinally ovate patches, occupying the basal area of elytra; in continuation with the humeral stripe but slightly moved inwards is a stripe which meets the half postmedian band almost at right angles, enclosing a lateral brown area. There are altogether six completely enclosed brown areas and two large areas, each of the latter being narrow and elongate along the outer side of the suture but widening considerably on the apical surface; 4× 2·5 mm. .... *M. picturata* Jac., [p. 412.

General colour brown; scutellum and elytra black, suture posteriorly brown, a conspicuous white median band across elytra, reaching the lateral margin but not the suture; 4·5× 2·5 mm. .... *M. zonula* Ws., p. 413.

43. Elytra unicoloured .... 44.

Elytra with more than one colour ...... 46.

44. Elytra distinctly and rugosely punctate .. 45.

Elytra not distinctly and only slightly rugosely punctate; 7 mm. long .... *M. ceylonica* (Harold), [p. 414.

45. Insect large, 8–10·5× 4·5–6 mm.; breast and abdominal sternites not black...... *M. nigripes* (Oliv.), [p. 414.

Insect 6·5× 3 mm.; breast and abdominal sternites black .... *M. braeti* (Duviv.), [p. 416.

46. Elytra red-brown, with the apical area blackish; head, pronotum and scutellum black; 9 mm. long .... *M. erythromelas* Ws., [p. 416.

No such combination of characters ...... 47.

47. Elytra with both basal and apical one-third black and area between them whitish; head behind black, pronotum whitish, scutellum black; length a little over 6 mm. .... *M. dividua* Ws., [p. 417.

No such combination of characters ...... 48.

48. Elytra pale brown with a narrow red band at base, hind margin of band concave; head, pronotum and scutellum pale brown; length over 7 mm.	*M. rufobasalis* (Jac.), [p. 418.
No such combination of characters	49.
49. Elytra with three black bands, basal, median and apical, alternating with brown bands, five in all; 4·5–6× 2·5–3·5 mm.	*M. cavipennis* [Baly, p. 405.
Elytra with black stripes and spots, five in all on each elytron; 5·5–7·5× 3–3·5 mm.	*M. duodecimmaculata* [Jac., p. 403.
50. Insect shining black; 3× 1·5 mm.	*M. constricticollis* (Jac.), [p. 418.
Insect dark brown; 3·5× 1·75 mm.	*M. puncticollis* (Jac.), [p. 419.

197. **Monolepta assamensis** (Jacoby).

Luperodes assamensis Jac., Ann. Soc. Ent. Belg. xlii, 1898, p. 189.

Body small, strongly convex, seen from above somewhat narrowed behind. General colour black; antennæ, tibiæ and tarsi bright brown.

Head: upper surface behind the interocular transverse channel sparsely and distinctly punctate, punctures fine but well impressed; frontal tubercles developed; transverse channel behind them deep. Eyes large. Antenna moderately stout, short, extending a little beyond the basal area of elytron; second segment thicker and slightly longer than third; latter narrower at base, becoming thicker towards the apex; fourth stouter and longer than third; rest of the segments similar to fourth, nearly equal to one another and covered with longish hairs. *Prothorax* broader than long; sides straight, finely margined; basal border widely rounded; anterior angles thickened; upper surface uniformly convex from side to side, fairly closely covered with well-impressed punctures, some of which are of the same size as those of the head, but most of them somewhat larger. *Scutellum* sharply triangular, surface smooth and impunctate. *Elytra* somewhat broader at base than the prothorax; upper surface fairly closely covered with moderately large and deeply impressed punctures; in this respect this species is unlike the others here included. *Underside*: epipleuron continued narrowly to the apex; hind tarsus about three-quarters of the length of hind tibia.

Length, 2·5 mm.; *breadth*, 1·5 mm.

Distribution. ASSAM.

Type in the British Museum.

198. **Monolepta sodalis** Weise.

Monolepta sodalis Weise, Deutsche Ent. Zeitschr. 1916, p. 40.
Monolepta modesta Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 228.

Resembles the genotype in form and in structural characters. General colour pale yellowish-brown ; elytra whitish ; vertical area of head blackish ; antennæ (except the three basal segments which are brown) blackish.

Head : upper surface with a few punctures ; transverse impression behind frontal tubercles not feeble ; the tubercles more pronounced than in the genotype. Antenna slender, extending nearly to the apical area ; second and third segments nearly equal ; fourth nearly twice as long as third. *Prothorax* : upper surface convex, indistinctly punctate, punctures very minute. *Elytra* more distinctly punctate.

Length, a little over 3 mm. ; *breadth*, 1·5 mm.

Distribution. BURMA : Bhamo, vi.–viii. 1885–86 (*Fea*).

Type in the Genoa Museum. Two specimens in the British Museum from Fea's collection. These are not good specimens, having been killed too soon after emergence from the pupal condition.

Weise did not describe *sodalis*, but he used it as a new name for *modesta* which was preoccupied.

199. **Monolepta plenus** (Weise).

Luperodes plenus Weise, Ark. f. Zool. xiv, 1, 1921, p. 103.
Luperödes obesa Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 398.

Body oblong-ovate, convex, more narrowed in front than behind. General colour yellow-brown ; three or four apical segments of antenna piceous, intermediate segments piceous at the apices, three basal segments brown ; underside black except the lateral margins of abdomen ; legs darker brown.

Head broad, upper side behind the interocular transverse channel sparsely punctate ; frontal tubercles developed ; transverse channel behind them well impressed ; interocular space broad. Antenna slender, extending to the middle of elytron ; first segment long and club-shaped ; second short, less than half of third ; third somewhat shorter than first ; fourth slightly shorter than third ; fourth to the last nearly equal to one another. *Prothorax* broader than long, distinctly narrowed in front ; sides straight, margins rounded and very slightly reflexed ; basal border widely rounded ; posterior lateral angles right angles ; upper surface obsoletely, very minutely and sparsely punctate, with the background very finely and transversely strigose. *Scutellum* sharply triangular, smooth, impunctate. *Elytra* hardly broader at base than the prothorax; upper surface closely and distinctly punctate. *Underside*: epipleuron continued very narrowly nearly to the apex; hind tarsus with the apical spine very long and about three-quarters of the length of hind tibia.

Length, 4 mm.; *breadth*, 2·5 mm.

Distribution. NILGIRI HILLS.

Type in the British Museum.

Weise changed the name of the species to *plenus*, *obesa* being preoccupied.

200. **Monolepta semirufa** Weise.

Monolepta semirufa Weise, in Junk & Schenkling, Col. Cat. pt. 78, 1924, p. 172.

Luperodes ruficollis Jac., Proc. Zool. Soc. Lond. 1887, p. 111.

Body oblong, rounded at the apex. General colour shining black to piceous except the following parts:—Head and prothorax reddish when general colour is intensely black, but when the latter is diluted to piceous head and prothorax reddish-brown; in the former case the underside of basal segment of antenna brownish but in the latter case the first two or three segments also somewhat diluted. The points of articulation between femora and tibiæ and bases of femora are generally somewhat diluted.

Head: upper surface behind the interocular transverse channel convex with a few punctures and fine transverse striations; frontal tubercles and the channel behind them not well developed. Antenna moderately stout, extending to the middle of elytron; second and third segments short, nearly equal; fourth longer than third but not to a great extent; fourth to eighth somewhat thickened, slightly convex on the inner side, nearly equal to one another; ninth, tenth and eleventh somewhat shorter, nearly equal to one another. *Prothorax*: sides rounded; basal margin widely rounded; upper surface uniformly convex from side to side, closely covered with fine and well-impressed punctures. *Scutellum* smooth, shining, impunctate. *Elytra* somewhat broader at base than the prothorax; closely covered with fine punctures which are somewhat larger than those of pronotum. *Underside*: epipleuron continued very narrowly nearly to the apex; hind tarsus slightly shorter than hind tibia.

Length, 3 mm.; *breadth*, 1·5 mm.

Distribution. CEYLON: Bogawantalawa, 4,900–5,200 ft., 21. iii.–4. iv. 1882 (*G. Lewis*).

Weise changed Jacoby's name because it was preoccupied.

201. **Monolepta bimaculicollis** Jacoby.

Monolepta bimaculicollis Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 405.

Body oblong, slightly widened behind. General colour brown with the following parts black:—Head behind the eyes; antennæ; one diffused patch on each side of the pronotum nearer the basal margin; scutellum and legs, clypeus and labrum smoky.

Head: upper surface smooth and impunctate; frontal tubercles well developed; transverse impression behind them pronounced; clypeus broad, convex. Antenna long, slender, extending nearly to the apical area of elytron; first segment very long, longer than second and third together; third short but longer than second; fourth much longer than third; from the fifth the segments are slightly thinner; fourth to ninth nearly equal to one another; tenth slightly shorter than ninth; tenth and eleventh equal. *Prothorax*: upper surface convex, smooth, covered with indistinct punctures. *Elytra* broader at base than the prothorax; upper surface closely punctate, punctures shallow, comparatively large. *Underside*: hind tarsus nearly half of hind tibia.

Length, nearly 5 mm.; *breadth*, 2·5 mm.

Distribution. NILGIRI HILLS (*Andrewes*).

Type in the British Museum.

This species shows several characters which do not conform to those of the genotype.

202. **Monolepta feæ** (Jacoby).

Candezea feæ Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 233.

Body oblong with the apex rounded. Colour entirely pale brown.

Head: upper surface behind the eyes with a few fine punctures; frontal elevations pronounced with a deep transverse channel behind them; clypeus broadly flattened with anterior margin nearly straight. Eyes very large. Antenna slender, two-thirds the length of the body; second and third segments short and equal; fourth as long as the three preceding segments together. *Prothorax* nearly twice as broad as long; narrowly margined; anterior angles obtuse, posterior distinct; upper surface closely punctate, the interstices slightly rugose. *Scutellum* rather long, impunctate. *Elytra* rather more strongly and very closely punctate. *Underside*: epipleuron continued behind the middle; first segment of hind tarsus nearly as long as half of the hind tibia; latter with a distinct spine.

Length, a little over 5 mm.

Distribution. TENASSERIM : Thagata, Meetan, iv. 1887 (*Fea*)
Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

203. **Monolepta subrugosus** (Jacoby).

Luperodes subrugosus Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 951.

General colour dark brown ; head and prothorax pale brown, labrum and palpi obscure piceous, antenna black except the three basal segments which are light brown ; elytra paler.

Head finely and closely punctate ; a deep transverse depression between the eyes ; the latter large ; clypeus rather swollen, finely punctate. Antenna half the length of the body ; first segment long and slender ; second short and thick third one-half longer and thinner ; the rest elongate and equal. *Prothorax* scarcely twice as broad as long ; sides but slightly rounded ; upper surface very finely and closely punctate, the interstices very finely and irregularly wrinkled. *Elytra* rather convex, widened towards the middle, the shoulders rounded ; upper surface more strongly punctate than the prothorax, the punctures very close and the interstices also finely wrinkled. *Underside* : the first segment of posterior tarsus as long as half the tibia.

Length, a little over 4 mm.

Distribution. BURMA : Rangoon, Toungoo, September (*Fea*).
Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

204. **Monolepta semialba** Jacoby.

Monolepta semialba Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 136.

Resembles the genotype in form (but is somewhat more elongate) and in structural characters.

General colour pale yellowish-white—a very peculiar colour which is characteristic ; eyes and breast black ; a little portion of the basal edge below the humerus on each side black (this feature can be seen from above) ; the point of articulation between the hind tibia and tarsus including the spine blackish.

Head : upper surface with a longitudinal median impressed line ; transverse impressed line more pronounced, under a high magnification finely punctate. Antenna long, slender, extending to some extent beyond the middle of elytron ; third segment short but slightly longer than second ; fourth nearly twice as long as third. *Prothorax* : seen under a high magnification upper surface fairly closely and finely punctate. *Elytra* markedly narrowed behind; upper surface closely and more distinctly punctate. *Underside*: hind tarsus nearly as long as the hind tibia.

Length, 5·5 mm.; *breadth*, 2·5 mm.

Distribution. BURMA: Tharrawaddy.

Type in the British Museum.

I believe the peculiar coloration of the specimens before me is probably due to the fact that they have been killed too soon after their emergence from the pupal case.

205. **Monolepta longitarsis** Jacoby.

Monolepta longitarsis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 297.

Body resembles the genotype in general form and structure but differs in some respects, as indicated below. Viewed sideways body strongly humpbacked, with great depth below elytra and with long slender legs.

General colour brown; metasternum and its associated structures, abdominal segments and the elytra red-brown, in parts piceous; sometimes base of elytra blackish, sometimes the whole elytra black; legs light brown; pronotum distinctly lighter, showing a striking contrast to the elytral coloration; antennæ light brown, sometimes six or seven apical segments blackish.

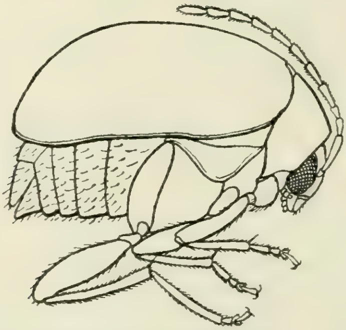

Fig. 106.—*Monolepta longitarsis* Jacoby, lateral aspect.

Head markedly narrowed in front, more so than in the genotype; upper surface impunctate; eyes very large, closely approximated, in consequence the roots of antennæ are very close together, touching each other and their outer rims touching the inner rims of the eyes; frontal tubercles non-existent; clypeus flat; labrum large, broader than long. Antenna extending to the middle of elytron; first segment club-shaped and very long, nearly as long as the three following segments; second and third short, as usual in the genus, equal ; fourth longer than third ; from the fourth the segments are slightly stouter and nearly equal to one another. *Prothorax* narrowed in front, almost as broad at base as the base of elytra ; sides straight ; basal margin bisinuate ; upper surface slopes down abruptly at the sides, smooth, convex, with indistinct punctures visible under a high magnification. *Scutellum* large, sharply triangular, smooth, impunctate. *Elytra* convex above, abruptly sloping down at each side ; almost as broad at base as at the apex ; lateral margins almost parallel ; apical margin of each elytron somewhat convex ; surface with indistinct punctures which are larger than those of the pronotum. *Underside* sparsely punctate and very sparsely covered with fine hairs ; epipleuron abruptly narrowed behind the basal portion and continued very narrowly to the apex, with the surface convex and sparsely punctate. Jacoby's remark that it disappears "below the middle" (by which, presumably, he means behind the middle) is not correct. Hind leg longest, hind femur stoutest, hind tarsi as long as the hind tibia, latter with a long apical spine, the bilobed segment very feeble.

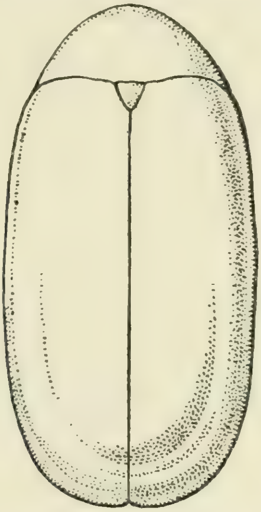

Fig. 107.—*Monolepta longitarsis* Jacoby, dorsal aspect.

Length, (♀) nearly 4 mm. ; *breadth*, 2·25 mm.

Length, (♂) 3·5 mm. ; *breadth*, 2 mm.

Distribution. BOMBAY : Belgaum (*H. L. Andrewes*). NILGIRI HILLS.

Type in the British Museum.

206. **Monolepta kanarensis** Jacoby.

Monolepta kanarensis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 293.

Resembles the genotype in form (but is somewhat oblong) and in structural characters. General colour shining brown; basal segment of antenna piceous, the rest black; tibiæ and tarsi blackish.

Head: antenna extending to the apical area of elytron; second and third segments of antenna very short; fourth nearly three times as long as third; fourth and fifth nearly equal, much thicker. *Prothorax*: upper surface finely and obsoletely punctate, visible only under a high magnification. *Elytra* more distinctly punctate, punctures well impressed, some finer. *Underside*: hind tarsus nearly three-quarters of the hind tibia.

Secondary sexual characters. In ♂ (1) the eyes are more strongly convex, and (2) the last visible sternite with a short longitudinal slit at each side.

Length, nearly 5 mm.; *breadth*, 2·5 mm.

Distribution. BOMBAY: Kanara. NILGIRI HILLS (*H. L. Andrewes*).

Type in the British Museum.

207. **Monolepta andrewesiana** nom. nov.

Luperus andrewesi Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 117.

Body oblong, rounded towards the apex. General colour pale brown; head with the upper surface behind the interocular line blackish; antennæ and legs piceous; breast darker brown.

Head: upper surface behind the interocular channel smooth, impunctate; frontal tubercles small but well developed; interocular transverse channel deeply impressed, somewhat widened laterally and continued to the eye-margin on each side. Eyes large. Antenna long, slender, extending to the apical area of the elytron; first segment very long; second small, rounded; third twice as long as second; fourth one and a half times longer than third; fifth equal to fourth; sixth very slightly shorter than fifth; sixth to ninth nearly equal to one another; tenth and eleventh slightly shorter. *Prothorax*: breadth equal to or slightly greater than length; basal margin and sides continuously rounded; at each posterior lateral angle is a slight extension for the reception of the setal pore; sides and basal border finely margined; anterior lateral angles thickened; upper surface moderately closely and very finely punctate, uniformly convex from side to side. *Scutellum* small, triangular, smooth, impunctate.

Elytra broader at base than the prothorax ; closely punctate, punctures, though larger than those of the pronotum, not very distinctly impressed. *Underside* : epipleuron narrowed before the middle, continued very narrowly nearly to the apex ; hind tarsus about half of the hind tibia.

Length, 5·5 mm. ; *breadth*, nearly 3 mm.

Distribution. NILGIRI HILLS.

Type in the British Museum.

The name *andrewesiana* is proposed because *andrewesi* is preoccupied.

208. **Monolepta pallida** (Jacoby).

Ochralea pallida Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 978.

Body oblong with the apex rounded. General colour pale brown : breast black.

Head : upper surface behind the eyes with very sparsely distributed obsolescent and fine punctures : frontal tubercles not very prominent ; transversely impressed line behind them moderately deep. Antenna extending to a short distance beyond the middle of elytron ; second and third segments very short, equal to one another : fourth much thicker and nearly three times as long ; fifth very slightly shorter than fourth ; rest of the segments nearly equal to one another. *Prothorax* : upper surface convex, smooth, with sparsely distributed obsolescent and fine punctures. *Elytra* : more distinctly punctate, punctures fine, well impressed and not very close together. *Underside* : hind tarsus nearly three-quarters of the hind tibia in length.

Length, 5·5 mm. ; *breadth*, 3 mm.

Distribution. BURMA : Karen Mts., v.–xii. 1888 (*Fea*).

Type and another of Fea's examples in the British Museum.

209. **Monolepta flavofasciata** Jacoby.

Monolepta flavofasciata Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 229.

General colour brown ; labrum black ; antennæ pale brown with the apical segment black ; scutellum and elytra black ; breast and middle and posterior legs black, anterior legs brown ; abdominal sternites red ; a postmedian transverse band on elytra yellowish-white, extreme apex of elytra red.

Head impunctate ; frontal tubercles obsolescent. Second and third segments of antenna small and equal. *Prothorax* about one and a half times as broad as long ; slightly widened in the middle ; sides scarcely rounded : posterior angles rather oblique ; upper surface impunctate. *Elytra* very finely punctate.

Length, nearly 4 mm.

Distribution. BURMA: Bhamo, viii. 1885 (*Fea*). PULO PENANG.

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

210. **Monolepta conformis** Weise.

Monolepta conformis Weise, Tijdschr. Ent. lxv, 1922, p. 105.

Body ovate, convex. Underside light brown, upper side darker brown, shining; head black, apical segments of antenna smoky. Elytra finely punctate.

Length, 2·8–3 mm.

Distribution. DARJEELING (*Fruhstorfer, Moser*).

Type location unknown to me.

I have not seen the type. The above is a translation of Weise's short description in Latin.

211. **Monolepta longicornis** (Jacoby).

Candezea longicornis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 979.

General colour dark brown; base of head, breast, last abdominal segment, tibiæ and tarsi black; two basal segments of antenna dark brown like the general colour, intermediate segments fuscous, terminal ones obscure brown; scutellum black; lateral margins of elytra narrowly black.

Head: upper surface behind the eyes impunctate; frontal tubercles narrowly transverse. Antenna very long, slender, extending beyond the apex of elytra; third segment twice as long as the second. *Prothorax* as broad as long; anterior margin and sides nearly straight; posterior margin rounded; upper surface very finely punctate. *Elytra* extremely minutely and closely punctate; on the basal area is a pear-shaped excavation the edges of which are raised, behind it and laterally situated is another much more shallow depression. *Underside*: epipleuron deeply concave and continued to the apex; first segment of posterior tarsus half the length of posterior tibia.

Length, a little over 4 mm.

Distribution. BURMA: Bhamo.

Type in the Genoa Museum. Described from a single specimen. I have not seen the type of this species. The above description is taken from Jacoby's original in English.

212. **Monolepta singhalesorum** Weise.

Monolepta singhalesorum Weise, Tijdschr. Ent. lxv, 1922, p. 107.
Luperodes pectoralis Jacoby, Proc. Zool. Soc. Lond. 1887, p. 110.
Monolepta ceylonica Weise, Ergebnisse 2. Deutsche Zentr.-Afr.-Exp., Zool. i, 1915, p. 177.

Resembles the genotype in form and structural characters. General colour brown, moderately shining, with the following parts black :—Antennæ, mouth-parts, portion of the head behind the eyes, a fairly broad band along the basal margin covering the humerus, scutellum and a certain short space behind (the hind edge of this band is fairly even and straight), margins all round and suture very narrowly black, and the breast. The brown colour is not always uniform, becoming lighter and darker at places.

Length, 5·25 mm. ; *breadth*, 3 mm.

Distribution. CEYLON : Dikoya, 3,800–4,200 ft., 6. xii. 1881–16. i. 1882 (*G. Lewis*).

Type of *pectoralis* in the British Museum.

Weise used the name *ceylonica* because *pectoralis* was preoccupied, and then some years later found that *ceylonica* was also preoccupied ; so *singhalesorum* was used.

213. **Monolepta basicincta** Weise.

Monolepta basicincta Weise, Ergebnisse 2. Deutsche Zentr.-Afr.-Exp., Zool. i, 1915, p. 177.
Monolepta feæ Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 984.

Body oblong with apex rounded. Antennæ and legs long. General colour light brown with the following parts differently coloured :—Head behind the eyes black ; mouth-parts reddish-black ; antennæ darker brown ; scutellum black ; suture and margins all round narrowly black ; breast and pygidium black ; the basal margin of elytron, humerus and a certain area behind red and posteriorly edged irregularly with black.

Head : upper surface behind the eyes very sparsely covered with fine punctures ; transverse impression behind the frontal tubercles well marked, latter not very obsolescent. Antenna long, slender, extending to the apex of elytron ; third segment short but longer than second ; fourth a little more than twice the length of third. *Prothorax* : upper surface convex but not strongly, closely and indistinctly punctate. *Elytra* more distinctly punctate, punctures moderately fine. *Underside* : hind tarsus somewhat shorter than hind tibia.

Length, 5·5 mm. ; *breadth*, 2·25 mm.

Distribution. BURMA : Karen Mts., v. xii. 1888 (*Fea*).

One of Fea's examples in the British Museum is marked as the type, but, as Jacoby states there were several examples before him when he described the species, the Genoa Museum may also claim to possess the type.

Weise used the name *basicincta* because *feæ* was preoccupied, Jacoby having used the latter name under genus *Candezea* (1889), which is a subgenus of *Monolepta* but is here treated as a synonym.

214. **Monolepta clypeata** Jacoby.

Monolepta clypeata Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 225 ; id., xxxii, 1892, p. 985.

General colour brown ; a spot between the eyes, frontal elevations, area round the roots of antennæ, the first segment and apices of succeeding segments of antennæ, the tibiæ black ; labrum piceous ; the extreme basal and sutural margins of elytra black ; scutellum piceous ; elytra paler.

Head impunctate ; clypeus broad and flattened with slight central ridge. Antenna long, slender, extending to two-thirds the length of the body ; first segment very long and slender ; the second extremely small ; third smaller than fourth. *Prothorax* one and a half times broader than long ; the sides slightly rounded in the middle ; upper surface somewhat convex, impunctate. *Elytra* with a very shallow depression below the base. *Underside* : epipleuron indistinct behind the middle ; first segment of hind tarsus longer than three following segments but shorter than half the length of tibia.

Length, a little over 4 mm.

Distribution. BURMA : Bhamo, August–October, 1885 (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

215. **Monolepta submarginata** Weise.

Monolepta submarginata Weise, Tijdschr. Ent. lxv, 1922, p. 107.
Monolepta marginata Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 981.

Body oblong with the apex rounded ; resembles the genotype in other respects. General colour brown ; head, antennæ (except three or four basal segments which are brown), breast and the last abdominal segment black ; margins of elytra all round and the suture very narrowly black ; tibiæ and tarsi blackish.

Head : upper surface sparsely covered with very fine punctures ; frontal tubercles moderately developed, transverse impression behind them well marked. Antenna extending to the middle of the elytron ; second and third segments short and equal to one another. *Prothorax* : upper surface indistinctly punctate, punctures hardly visible but more apparent on a dark border in front. *Elytra*: upper surface more distinctly punctate, punctures fine. *Underside*: hind tarsus somewhat shorter than the hind tibia.

Length, 4 mm.; *breadth*, 2 mm.

Distribution. BURMA: Karen Mts. (*Fea*).

Type in the British Museum.

Weise did not describe this species. He used *submarginata* as a new name for *marginata*, which was preoccupied.

216. **Monolepta tenasserimensis** sp. nov.

Body oblong, parallel-sided, apical margin truncate, pygidium exposed. General colour dark brown; head and antennæ with a reddish tint: the following parts black:—Sides of pronotum, basal, lateral and apical margins of elytra, humerus, scutellum, suture narrowly and a moderately broad postmedian, ill-defined band across elytra: breast, tibiæ and tarsi.

Head: upper surface behind the interocular channel sparsely and finely punctate; frontal tubercles developed but not very strongly the channel behind them well impressed. Eyes strongly convex. Antenna long, slender, extending to the apex of the body; first segment very long; second short; third about twice as long as second; fourth one and a half times as long as third; from the fifth the segments are nearly equal to one another. *Prothorax* broader than long; front and basal margins almost straight; sides gently rounded in front, margins slightly reflexed; upper surface with the background finely and irregularly reticulate in a transverse direction, sparsely and finely punctate, punctures well impressed. *Scutellum* smooth, impunctate. *Elytra* somewhat broader at base than the prothorax; upper surface more closely punctate, punctures somewhat larger than those of pronotum. In the male there is on each elytron, a short distance behind the scutellum and near the suture, a wedge-shaped, oblique, elongate, impressed area. *Underside*: epipleuron continued without much narrowing to the external apical corner of elytron; last visible abdominal sternite modified, with a deep median impression; hind tarsus somewhat shorter than the hind tibia.

Secondary sexual characters of ♂. (1) Wedge-shaped area behind the scutellum near the suture on each elytron; (2) last visible abdominal sternite modified.

Length, 4·5 mm.; *breadth*, 2·5 mm.

Distribution. TENASSERIM: Tavoy (*Doherty*).

Type in the British Museum.

Described from six examples: 4 ♀♀, 2 ♂♂.

217. **Monolepta impressipennis** (Jacoby).

Luperodes impressipennis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 950.

Body oblong with the apex rounded. Head dark brown, labrum and palpi black, antennæ black except two basal segments which are brown; prothorax paler brown, elytra brown with an ill-defined, nearly triangular, paler basal area, apex of triangle being directed behind; scutellum, underside except the last abdominal segment which is paler brown, and legs black.

Head impunctate; frontal tubercles not well developed; transverse channel behind them not extending to the eye-margin. Antenna moderately stout, nearly two-thirds the length of the body: third segment one-half as long again as second; fourth twice as long as third; rest of the segments like fourth and nearly equal to one another. *Prothorax*: upper surface strongly convex, fairly closely and very minutely punctate; sides rounded, margins rounded, not sharp; anterior angles more thickened than the posterior. *Scutellum* sharply triangular, surface smooth and impunctate. *Elytra* slightly broader at base than the prothorax; upper surface closely covered with round blackish spots which are not punctures in the sense that they are impressed points, but spots that appear as though they were below the surface. In addition there are very fine sparsely distributed impressed punctures. In the male, a short distance behind the scutellum, on each side of the suture and very close to it, is a shallow elongate depression in consequence the suture is raised at this place. *Underside* and legs clothed with fairly long yellowish hairs; epipleuron continued very narrowly nearly to the apex, the basal broad portion concave on the inner marginal area; hind tarsus about three-quarters of the length of hind tibia.

Secondary sexual character. In ♂ the third segment of antenna longer than that of female; a short distance behind the scutellum a short elongate depression on each side of the suture.

Length, 5 mm.; *breadth*, 3 mm.

Distribution. BURMA: Karen Mts., v.–xii. 1888 (*Fea*). SYLHET.

Type in the British Museum.

218. **Monolepta flavicornis** (Jacoby).

Luperodes flavicornis Jac., Proc. Zool. Soc. Lond. 1887, p. 110.

Resembles the genotype in form, but is somewhat more widened behind, and in structural characters. General colour brown; head, antennæ, prothorax, legs and abdominal sternites pale brown ; breast dark red-brown ; eyes black ; elytra dark red-brown, the basal area much darker, though without well-defined limits ; scutellum lighter brown. The basal darker area of elytra may be much reduced. There is strong contrast between the pronotal and elytral colours.

Head : antenna long, extending almost to the apical area. *Prothorax* less distinctly punctate than the elytra. *Underside* : the tarsus of the hind leg only slightly shorter than the hind tibia.

Length, 5 mm. ; *breadth*, 3 mm.

Distribution. CEYLON : Dikoya, 3,800–4,200 ft. (*G. Lewis*).

Type in the British Museum.

219. **Monolepta eunicia** sp. nov.

Body oblong-ovate. General colour red-brown, underside more brown than red ; front part of the upper side of head light brown to black, head behind red-brown or red ; three basal segments of antenna brown to piceous with intermediate stages, rest of the segments black ; tibiæ and tarsi black, the light colour of femora contrasting strongly ; pronotum and more than half of the elytra red-brown to red. On the apical area of each elytron there is always a very light patch varying in size ; sometimes this is ovate, in which case the suture and lateral margins near the apex share the colour of the basal portion of elytra ; in other cases the light apical patch is enlarged and the lateral margins towards apex lose their red colour, but along the suture a narrow wedge-shaped patch continuous with basal red remains prominent. The boundaries between the basal red and apical light colour are diffuse, ill defined.

In the collection of the British Museum there are many examples of *Monolepta hageni* Ws., 1916, from Siam, Malay Peninsula and Sumatra, which exhibit a strongly contrasting red covering about one-third of the basal area, while the rest is of lighter colour. The boundary between these is straight and sharply defined. By intermediate stages (evidence of which exists) *M. hageni* may be linked with *M. eunicia*, but at present there is no means of determining whether the two species are synonymous.

Head : upper surface behind the interocular transverse channel smooth and with a few punctures ; frontal tubercles developed, with the transverse channel behind well impressed. Antenna long, extending beyond the middle of elytron ; second and third segments short, latter somewhat longer than former ; fourth nearly twice as long as third ; from the fourth the segments are nearly equal to one another with a slight variation, and are covered with bristly hairs. *Prothorax* somewhat broader than long ; front and basal margins almost straight ; sides oblique, gently rounded in front, margins slightly reflexed ; anterior angles thickened ; upper surface sparsely punctate, punctures fine and well impressed. *Scutellum* sharply triangular, smooth and impunctate. *Elytra* somewhat broader at base than the prothorax ; moderately closely covered with well-impressed punctures which are larger than those of the pronotum. *Underside* : epipleuron abruptly narrowed behind the middle and continued very narrowly nearly to the apex ; hind tarsus somewhat shorter than the hind tibia.

Length, 5 mm. ; *breadth*, nearly 3 mm.

Distribution. ASSAM : Sadyia ; Manipur (*Doherty*). BURMA : Ruby Mines (*Doherty*).

Type in the British Museum.

Described from six examples.

220. **Monolepta nigrobilineata** (Motschulsky).

Cnecodes nigrobilineatus Motsch., Études Ent. ix, 1860, p. 26.
Cnecodes suturalis Motsch., Études Ent. vii, 1858, p. 100 ; Weise, Philipp. Jour. Sci. Manila, Sect. D, v, 1910, p. 141.
Monolepta suturalis Motsch., Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 444.
Luperodes suturalis Motsch., Weise, Tijdschr. Ent. lxv, 1922, pp. 80 & 81 ; Allard, Ann. Soc. Ent. France, (6) ix, 1889, p. 310.
Var. *vittatus* Weise, Tijdschr. Ent. lxv, 1922, p. 80.
Var. *abbreviatus* Weise, l. c. p. 81.

Body oblong-ovate. General colour brown ; a conspicuous, wavy, moderately broad black stripe along the middle of each elytron from the basal margin to the apex ; taking the suture as the line of reference the crest of the wave is near the middle of elytron and of the two hollows one is basal and the other is postmedian ; the bisinuation of the outer side of the stripe is often more accentuated than that of the sutural side ; along each margin of elytron (epipleuron included) is a black stripe which commences at the basal margin but does not reach the apex, terminating at a postmedian point. Other black parts are as follows :—Head ; an ill-defined patch on the pronotum longitudinally covering the middle portion beginning from the apex but without reaching the base, each margin with a similar short ill-defined patch ; breast and the sides of the abdominal segments ; some portions of femora and tibiæ from the points of articulation between them. Antennæ blackish except eighth, ninth and tenth segments, which are conspicuously light, almost white. Scutellum always brown as the general body-colour.

This is a very widely distributed species ; variations are therefore to be expected, but these are only in the colour-markings and not in form and structure. The intensity of the black markings varies from pale pitch-brown to fully black, in the latter case all parts assume a deeper colour. In the Japanese examples a considerable reduction in the markings has taken place; the elytral stripe is more slender and straight and falls far short of the apex, in some cases its commencement at the basal margin is interrupted, and the other darker parts have become brown. No fully melanic example occurs among the specimens from this area that I have before me.

I have adopted the name *nigrobilineata*, which was applied to the Japanese variety, for the species, since *suturalis* is preoccupied.

Head: upper surface behind the interocular transverse channel convex, smooth and impunctate, but along the channel small punctures are crowded; frontal tubercles large, well developed; channel behind them well impressed; interocular space broad. Antenna moderately stout, more so towards the apex, extending to the middle of elytron or a little beyond; second and third segments short, latter slightly longer than second; fourth somewhat longer than third; fifth very slightly shorter than fourth; rest of the segments nearly equal to one another. *Prothorax* quadrate, narrowed behind; front margin straight, sides slightly bulging in the middle; basal margin gently bisinuate; posterior lateral angles situated somewhat forwards relative to the basal margin, thickened; anterior lateral angles much more thickened; sides and basal border finely margined; upper surface strongly convex from side to side, moderately closely covered with fine and distinct punctures. *Scutellum* broader than long, sharply triangular, smooth and impunctate. *Elytra* broader at base than the prothorax; upper surface closely covered with moderately large punctures which are larger than those of pronotum. *Underside*: epipleuron continued very narrowly to the apex; hind tarsus nearly three-quarters of the length of hind tibia.

Length, 3·75 mm.; *breadth*, 2 mm.

Distribution. BOMBAY. MADRAS: Nilgiri Hills, Madura. UNITED PROVINCES: Dehra Dun. BENGAL: Calcutta, Mandar (*Père Cardon*). CHINA: Foochow, Canton. JAPAN.

Types of Motschulsky's species in the Moscow University Museum.

Many specimens in the British Museum.

221. **Monolepta javana** Jacoby.

Monolepta javana Jac., Notes Leyden Mus. vi, 1884, p. 234; Ann. Mus. Civ. Genova, xxvii, 1889, p. 230.

Body small, convex. General colour dark brown; head black; basal segment of antenna and eighth, ninth and tenth dark brown, remainder pitch-black ; pronotum lighter brown, a median longitudinal stripe and lateral margin anteriorly pitch-black or black ; each elytron with a black longitudinal stripe commencing at the base but not quite extending to the apex, lateral margin and epipleuron black terminating near the middle ; legs of the general body colour but bases of tibiæ and claws pitch-black.

Head : surface strongly punctate in front ; frontal tubercles well developed. Antenna not quite so long as the body. *Prothorax* quadrate or slightly longer than broad ; sides somewhat narrowed at base ; posterior angles rather oblique ; upper surface impunctate. *Scutellum* narrow, broader than long. *Elytra* very finely punctate.

Length, a little over 2 mm.

Distribution. Burma : Bhamo, vi. 1886 (*Fea*).

Type in Leyden Museum.

This species was first described from three specimens, two collected by A. L. van Hasselt in Western Java and one collected by J. Semmelink from Pleyhari, South-east Borneo. Later Jacoby found one example in Fea's collection from Burma.

I have not seen the type of this species. The above description is taken from Jacoby's original account in English.

222. **Monolepta lineata** Weise.

Monolepta lineata Weise, Ergebnisse 2. Deutsche Zentr.-Afr.-Exp., Zool. i, 1915, p. 177.
Monolepta duvivieri Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 404.

Resembles the genotype in form and generally in structural characters. General colour dirty brown ; antennæ (except the three basal segments which are dark brown) black ; labrum black, other mouth-parts piceous ; sides of prothorax diffusedly piceous ; suture, including the scutellum (sometimes dark brown), the lateral margin and a comparatively broad stripe along the middle blackish. This stripe begins from the basal margin, partly covers the humerus and does not quite reach the apical margin. The extreme apical margins of elytra are not stained.

Head : upper surface sparsely punctate, the punctures, though fine, are well impressed ; frontal tubercles and the transverse impressed line behind them more pronounced than in the genotype. Antenna comparatively thicker, extending slightly beyond the middle of elytron ; from the fourth the segments are covered with stiff hairs ; second and third segments short and almost equal to one another ; fourth thicker and somewhat longer than third. *Prothorax* : upper surface smooth, convex and sparsely covered with fine and well-impressed punctures. *Elytra* fairly closely covered with strongly impressed and comparatively coarse punctures. This may be regarded as a unique character among our species of *Monolepta*. *Underside*: hind tarsus nearly three-quarters of the hind tibia.

Length, 3 mm.; *breadth*, 1·5 mm.

Distribution. Nilgiri Hills.

Type of *duvivieri* in the British Museum.

Weise did not describe the species but merely gave it a new name because Jacoby's name was preoccupied.

223. **Monolepta oculata** Weise.

Monolepta oculata Weise, Ergebnisse 2. Deutsche Zentr.-Afr.-Exp., Zool. i, 1915, p. 177.

Candezea apicalis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 980.

General colour brown; antennæ and tarsi black; the apical portion of elytra piceous with a pale yellowish-brown spot in the middle.

Head impunctate. Eyes large. Antenna extending to about the middle of elytron; second and third segments very short, equal; apical segments shorter than intermediate ones. *Prothorax*: nearly twice as broad as long; sides slightly, posterior margin more strongly rounded; upper surface transversely convex, finely and rather sparingly punctate. *Elytra* more distinctly punctate, punctures very evenly distributed and somewhat regularly arranged. *Underside*: epipleuron continued behind the middle; first segment of hind tarsus very long.

Length, 4 mm.

Distribution. Burma: Karen Mts. (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. Jacoby described it from one example. The above description is taken from Jacoby's original account in English.

Weise changed the name because Jacoby's *apicalis* was preoccupied.

224. **Monolepta albomaculata** nom. nov.

Monolepta alboplagiata Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 983.

General colour black; each elytron with two round white spots, one before and the other behind the middle; three basal segments of antenna, prothorax and legs yellow-brown.

Head impunctate; frontal tubercles distinct; eyes large; antenna slender, extending to rather more than half the length of the elytron. *Prothorax* nearly twice as broad as long;

sides nearly straight; posterior margin only moderately rounded; upper surface convex, impunctate. *Elytra* very finely punctate. *Underside*: first segment of posterior tarsus much longer than the following segments together.

Length, 3 mm.

Distribution. BURMA: Bhamo; Pegu, Palon.

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original account in English. The new name is given because *alboplagiata* is preoccupied.

225. **Monolepta ornata** (Jacoby).

Candezea ornata Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 981.

Resembles the genotype in form and in structural characters. General colour black with a large, conspicuous, transversely ovate, yellowish median patch on each elytron. This patch neither reaches the suture nor the elytral margin, though approaching them very closely. The edge where the black meets the yellowish colour of the patch is somewhat uneven. Three basal segments of antenna, underside (except the abdominal sternites) and legs piceous.

Head: upper surface punctate; frontal tubercles and the transverse channel behind them more accentuated than in the genotype. Antenna extending nearly to the apex of the elytron; from the fourth segment to the end covered with bristly hairs. *Prothorax*: sides thickened and margined; upper surface smooth, sparsely covered with fine punctures and a few comparatively coarser ones especially on the lateral area. *Elytra*: as sparsely punctate as the pronotum but containing more coarser punctures. Lateral margins slightly reflexed. *Underside*: hind tarsus nearly three-quarters of the hind tibia.

Length, 5·5 mm.; *breadth*, 3 mm.

Distribution. BURMA: Karen Mts., v.–xii. 1888 (*Fea*).

Type in the British Museum.

226. **Monolepta khasiensis** Weise.

Monolepta khasiensis Weise, Deutsche Ent. Zeitschr. 1916, p. 40.
Candezea quadrimaculata Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 138.

Resembles the genotype in form and in structural characters. General colour bright brown with the following parts black:—Apical portion of labrum; antennæ (except the three basal segments); two patches on each elytron, one basal and the other apical; and the abdominal sternites. Tibiæ and tarsi fuscous. Of the two patches on each elytron the basal is smaller, covering an area from the humerus to a point very near the scutellum but without actually reaching it. Anteriorly this patch has an even margin which is well above the basal margin of the elytron ; it does not stain the lateral margin ; posteriorly it stretches irregularly, more on the outer side than on the inner, and having the margin uneven. The apical patch is oblong-ovate, occupying a considerable portion of the elytral surface, without reaching either the suture or the lateral margin, and having the edge all round uneven.

Head : eyes not very large. *Prothorax* broader than long ; sides uniformly rounded ; upper surface convex, finely punctate, punctures visible under a high magnification. *Elytra* fairly closely punctate, punctures though fine are well impressed and much stronger than those of pronotum. Lateral edges very slightly expanded. *Underside* : hind tarsus nearly half of the hind tibia.

Length, 5 mm. ; *breadth*, 2·75 mm.

Distribution. ASSAM : Khasi Hills. BOMBAY : Dharwar.

Type in the British Museum.

Weise did not describe this species ; he gave a new name to Jacoby's species because Jacoby's *quadrimaculata* was preoccupied.

227. **Monolepta bimaculata** (Hornstedt).

Chrysomela bimaculata Hornst., Schriften Ges. Naturf. Freunde, Berlin, viii, 1788, p. 4, pl. i, fig. 4 ; Weise, Deutsche Ent. Zeitschr. 1892, p. 400.

Cryptocephalus sumatranus Gmelin, ed. Linn. i, 4, 1790, p. 1712.

Cnecodes bisignatus Motsch., Études Ent. vii, 1858, p. 99.

Luperodes scutellatus Jac., Notes Leyden Mus. vi, 1884, p. 46, & Ann. Mus. Civ. Genova, xxxvi, 1896, p. 466.

Candezea sculpta Blackburn, Proc. Linn. Soc. N.S.W. (2) v, 1890, p. 363 ; Trans. Roy. Soc. S. Aust. xx, 1896, p. 89.

Luperodes (*Cnecodes*) *bisignatus* Motsch., Jacoby, Ann. Mus. Civ. Genova, xxxvi, 1896, p. 466.

Body oblong, rounded towards the apex. General colour shining brown ; labrum blackish, antennæ (except two or three basal segments which are sometimes brown), tibiæ and tarsi piceous ; breast black ; pronotum darker brown ; scutellum, a patch on each humerus and a median patch on each elytron blackish. The humeral patch remains fairly constant in size, *i. e.*, not exceeding the size of the convexity of the humerus, but the elytral patch varies from a small roundish spot to a considerable area in the middle of elytron ; the boundaries of this patch are always ill defined.

Those cases in which the humeral and median elytral patches have completely disappeared, although the scutellum still retains the blackish colour, have been described by Jacoby as *scutellatus* ; these must be regarded as a variety of *Monolepta bimaculata* Hornst.

Head broad, large, upper surface behind the interocular transverse channel impunctate but for a few very fine punctures; frontal tubercles small but well developed; area behind them depressed and the transverse channel not extending to the eyes. Eyes not very large, in consequence the interocular space broad. Antenna slender, extending to the middle of elytron: first segment very long; second short; third nearly twice as long as second; fourth nearly equal to or very slightly longer than third but somewhat stouter; fourth and fifth nearly equal to one another; sixth slightly shorter than fifth: sixth to tenth nearly equal to one another; eleventh with its delimited pointed end slightly longer than tenth. *Prothorax* almost quadrate or very slightly broader than long: sides slightly convex before the middle, basal margin widely rounded: upper surface smooth, extremely minutely and indistinctly punctate. *Scutellum* sharply triangular, surface smooth and impunctate. *Elytra* somewhat broader at base than the prothorax; upper surface not quite smooth, faintly uneven, minutely punctate, punctures more distinct than those on the pronotum. *Underside*: epipleuron continued narrowly to the apex; hind tarsus nearly three-quarters the length of the hind tibia.

Length, 4–5 mm.; *breadth*, 2–2·5 mm.

Type of *bimaculata*, location unknown to me.

Type of *bisignata* in Moscow University Museum.

Location of other types unknown to me. I believe with Weise and others that all the other species described at different times should be regarded as one and the same species.

Distribution. Burma. Ceylon. Sumatra. Java.

228. **Monolepta cardoni** Jacoby.

Monolepta cardoni Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 137.

Body oblong with the apex rounded. General colour brown; from the fourth or fifth the antennal segments piceous; the following parts black or blackish:—Humerus and basal margin below it, this marginal stripe continued for a short distance beyond the middle of elytron; scutellum and a sutural stripe commencing at base and terminating before the middle, stripe somewhat broadened as it approaches the middle; an approximately transverse ovate patch behind the middle on each elytron: a certain apical area on each elytron; and the breast. This pattern is characteristic.

Head: upper surface impunctate; transverse impressed line behind the frontal tubercles moderately pronounced. *Pronotum*: upper surface convex; seen under a high magnification very sparsely and minutely punctate. *Elytra* distinctly and closely punctate, punctures mostly fine but there are some comparatively coarser ones. *Underside* : hind tarsus nearly three-quarters of the hind tibia.

Length, 2·5–3 mm. ; *breadth*, 1·5 mm. or a little less.

Distribution. BENGAL : Mandar.

Type in the British Museum.

229. **Monolepta duodecimmaculata** (Jacoby).

Luperodes duodecimmaculata Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 212.

Body oblong-ovate. General colour light brown ; labrum black, eyes surrounded by black, antenna black except the basal segment (sometimes two or three) which is brown ; pronotum with an elongate black patch on each lateral area, which does not stain the corners ; scutellum black ; elytra with black stripes and spots as follows :—A short sutural patch surrounding the scutellum and a short and narrow stripe along each lateral margin from humerus to middle, two small black spots on the basal area one humeral and the other behind it but situated nearer the suture, a large round one behind the middle, another smaller, more posteriorly situated, near the lateral margin and, lastly one at the extreme apex, five patches in all on each elytron ; breast, tibiæ and tarsi black.

Head impunctate ; frontal tubercles obsolescent. Antenna two-thirds the length of the body ; third segment twice as long as the second ; fourth twice as long as the third. *Prothorax* as broad as long ; each lateral margin straight with the middle slightly widened ; upper surface closely punctate. *Elytra* finely but more distinctly punctate than the pronotum. *Underside* : the first segment of the posterior tarsus is half the length of the posterior tibia.

Length, 5·5–7·5 mm. ; *breadth*, 3–3·5 mm.

Distribution. UPPER BURMA : Katha, June 1885 (*Fea*).

Type in the Genoa Museum.

Several specimens in the British Museum, one of which has the identification label in Jacoby's handwriting. The locality-labels on these specimens have only " India " and " Burma," and no other particulars.

230. **Monolepta scripta** (Motschulsky).

Luperodes scriptus Motsch., Bull. Soc. Nat. Mosc. xxxix, part i, no. 2, 1866, p. 416.
Luperodes multimaculatus Jac., Proc. Zool. Soc. Lond. 1887, p. 111.
Monolepta multimaculata Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 226.
Monolepta piceomaculata Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 295.

Body oblong-ovate with the apex rounded. General colour brown with the following pattern of black spots and patches on the upper side :—An ill-defined patch on the convex area of the upper surface of head ; a stripe along each lateral margin of pronotum which does not stain the corners ; a band along basal margin of elytra ; a spot on humerus ; scutellum ; a stripe along each lateral margin of elytra, extending from base to middle of elytron ; an elongate patch on each elytron between humerus and suture but nearer the former, extending from basal margin to a short distance behind ; an irregular postmedian patch on each elytron which sometimes shows evidence of being formed by the fusion of two patches ; outside and a little behind this patch is another patch which is sometimes quite small and may be elongated into a short stripe ; a small patch on the extreme apical area of elytra ; and a narrow stripe on suture along its entire length. Antennæ blackish (except three basal segments which are brown with some portions piceous). On the underside the breast and the extreme apex of abdomen black to piceous. Tibiæ and tarsi somewhat darker than femora. The pronotum may have a roundish patch in the middle. The variation of the elytral pattern consists in the enlargement of spots and patches. The posthumeral spot is sometimes elongated. The large postmedian patch extends irregularly anteriorly and posteriorly, sometimes meeting the suture by a posterior offshoot. The lateral patch behind the large postmedian one is enlarged, in some cases forming a narrow and backwardly directed stripe which joins the apical patch. Thus this stripe, the apical patch and the sutural stripe together form a U-shaped figure.

Head : the eyes are so large that the interocular space has become very narrow ; upper surface behind the interocular transverse channel closely and finely punctate ; frontal tubercles, though small, well developed ; transverse channel behind them well impressed. Antenna slender, extending to about the middle of elytron ; second and third segments short, latter longer than former ; fourth nearly one and a half times as long as third ; fourth to ninth nearly equal to one another ; the last two slightly shorter. *Prothorax* : upper surface convex from side to side, fairly closely punctate, punctures fine, but on the lateral area producing a slight rugosity. *Scutellum* small, apex rounded, surface smooth and impunctate. *Elytra* distinctly broader at base than the prothorax ; upper surface fairly closely punctate, punctures fine and well impressed. *Underside* : epipleuron continued very narrowly nearly to the apex ; hind tarsus somewhat shorter than hind tibia.

Length, 3·25–5 mm. ; *breadth*, 1·75–nearly 3 mm.

Distribution. M. multimaculata Jac. was described from Burma : Rangoon and Tenasserim. *M. piceomaculata* was described from Bombay : Belgaum, Kanara (Andrewes Coll.). Other localities of the specimens in the collection of the British

Museum are :—Bombay : Khandesh (*T. R. Bell*), Dharwar. Madras : Nilgiri Hills (*H. L. Andrewes*). Assam : Khasi Hills. Burma : Toungoo. Ceylon : Kandy, vi. 1908 (*G. E. Bryant*) ; Halupahani, Haldummulle.

Type of *scripta* in Moscow University Museum.

Types of Jacoby's species in the British Museum.

231. **Monolepta cavipennis** Baly.

Monolepta cavipennis Baly, Cist. Ent. ii, 1878, p. 459.
Candezea trifasciata Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 139.
Monolepta siamensis Weise, Ergebnisse 2. Deutsche Zentr.-Afr.-Exp., Zool. i, 1915, p. 177.

Resembles the genotype in form and structural characters. General colour brown with the following parts black :—Head completely, breast and legs, three bands on elytra. Antennæ brown to piceous. Portions of leg-segments especially around the points of articulation between femora and tibiæ show various stages in which the black colour is being discharged. The bands on elytra are basal, median and apical. The basal band covers a good portion of the elytral surface from the base to a short distance behind the scutellum and completely stains the lateral margin below the humerus ; its posterior edge is fairly even but sometimes broken up and often shows a tendency towards this. The median band is situated just behind the middle, spreads to the lateral edge and by a narrow extension along the margin joins the apical band, but it has no connection with the basal band. At the suture a tendency towards division is noticeable, and in some examples is quite complete, *i. e.*, the median band ceases to touch the suture ; but in every case it reaches the lateral margin ; in some cases there is a constriction in the middle. The apical band completely covers a certain area, the front margin of which is generally even but is sometimes concave on each elytron.

Length, 4·5–6 mm. ; *breadth*, 2·5–3·5 mm.

Distribution. Assam (locality of Baly's type). Siam (locality of Jacoby's type). Tringanee. Cochin-China. Hong-kong.

Types in the British Museum.

Weise used the name *siamensis* because *trifasciata* was preoccupied.

232. **Monolepta birmanensis** Jacoby.

Monolepta birmanensis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 982.
Monolepta birmaensis Jac., Duvivier, Ann. Soc. Ent. Belg. xxxvi, 1892, p. 444.

Resembles the genotype in form and in structural characters. Colour of upper side is as follows :—Head, antennæ, prothorax, a median and an apical band on elytra brown, the pronotum and elytral bands somewhat lighter ; on the elytra a basal and a postmedian band black. Underside (except that of the prothorax) black, all parts of front legs, middle and hind femora light brown, middle and hind tibiæ and tarsi blackish. In some varieties the apical light colour of the elytra is absent. Sometimes the middle legs are also entirely brown.

Head : upper surface behind the eyes impunctate. Antenna extending to short distance beyond the middle of elytron ; third segment very short, shorter than second ; fourth nearly four times as long as third. *Prothorax* : upper surface convex, smooth, seen under high magnification with very fine and very sparsely distributed punctures. *Elytra* also similarly covered with very fine and very sparsely distributed punctures. *Underside* : hind tarsus slightly shorter than the hind tibia.

Length, 3 mm. ; *breadth*, 2 mm.

Distribution. Burma : Karen Mts., v.–xii. 1888 (*Fea*).

According to Duvivier two examples have been taken in Kurseong, Darjeeling.

One of Fea's examples in the British Museum is marked "Type," but the Genoa Museum may also claim to possess the type.

233. **Monolepta gestroi** Jacoby.

Monolepta gestroi Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 983.

Body somewhat elongate, convex. General colour brown ; vertical area of head black, antennæ (except the basal segments which are brown) and labrum black ; elytra reddish-brown, basal margin narrowly black, a postmedian slender yellowish-white band, this latter bounded anteriorly and posteriorly by a slender black band ; legs blackish.

Head impunctate above. Antenna short ; second and third segments very short ; segments between the basal and apical ones slightly widened. *Prothorax* scarcely twice as broad as long ; sides nearly straight, narrowed in front ; upper surface very finely punctate. *Elytra* not more strongly punctate than the pronotum. *Underside* : epipleuron broad at base, disappearing behind the middle. Each tibia with an apical spine ; first segment of hind tarsus longer than the following segments together.

Length, a little over 4 mm.

Distribution. Burma : Pegu, Palon (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is from Jacoby's original account in English.

234. **Monolepta orientalis** Jacoby.

Monolepta orientalis Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 227; Ann. Soc. Ent. Belg. xl, 1896, p. 294; Duvivier, Ann. Soc. Ent. Belg. xxxvi, 1892, p. 444.
Monolepta konbirensis Duviv., Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. xlvii.

Resembles the genotype in form and structural characters. General colour brown; sometimes head fuscous or black; antennæ occasionally fuscous; sometimes most of the middle and hind femora black, and in these cases the hind tibiæ and tarsi blackish. In the most melanic examples some parts of breast black. The characteristic elytral pattern is as follows:—The basal and apical portions are red separated by a band of the general brown colour. In some examples the red of the two portions spreads in a longitudinal direction, so that the median brown band becomes very narrow. In a large number of cases the basal red has a basal or anterior and an apical or posterior black band, and the apical red only a basal or anterior black band; these bands show many stages from a very broad condition to a very narrow one until they completely disappear. In most cases the basal black band does not cover the scutellum which retains the basal red colour, although in some cases even the scutellum has been stained black. The black bands, except the extreme basal one, do not stain the marginal edges of the sides. When the elytral pattern is complete, having all the colours well developed, the successive colours are (1) black, (2) red, (3) black, (4) brown, (5) black, (6) red. The anterior and posterior margins of all bands are fairly even.

The tarsus of the hind leg is very long, almost three-quarters of the hind tibia.

Length, 4·5 mm.; *breadth*, 2·5 mm.

Distribution. Bombay: Belgaum; Nasik, Deolali, 1. i. 1922 (*Major J. E. M. Boyd*). Madras: Nilgiri Hills. Ceylon: Kandy, vi. 1908 (*G. E. Bryant*); iv. 1915 (*C. F. S. Baker*); ix. 1907 (Brit. Mus.). Assam: Patkai Mts. (*Doherty*). Burma: Pegu, Palon, viii.–ix. 1887 (*Fea*).

Type location unknown to me. Numerous examples in the British Museum.

The variety which has been named *konbirensis* shows the following characteristics:—There are three specimens in the British Museum from Duvivier's collection, and each shows a different pattern which is obviously a deviation from the fully developed pattern described above. In one case the basal red is completely black, the median black is more developed, the basal black is reduced and the scutellum is red. In another case there is the basal black, then the red followed by a large black patch, the brown that is found after this having disappeared, although a slight brown patch exists near the suture indicating the position of the usual band, and finally there is the red apical patch. In a third example the whole of the elytral surface is blackish.

Distribution. BENGAL : Konbir.

235. **Monolepta bifasciata** (Hornstedt).

Chrysomela bifasciata Hornst., Schriften Ges. Naturf. Freunde, Berlin, viii, 1788, p. 3, pl. 1, fig. 6.
Cryptocephalus multicolor Hornst., Gmelin, ed. Linn. i, 4, 1790, p. 1712.
Galleruca bifasciata Fab., Ent. Syst. i, 2, 1792, p. 27.
Crioceris quadrinotata Fab., Syst. El. i, 1801, p. 460.
Galeruca quadrinotata Olivier, Entomologie, vi, 1808, p. 665, no. 93, pl. v, f. 90.
Luperodes latefascia Motsch., Étud. Ent. vii, 1858, p. 104; Chapuis, Gen. Col. xi, 1875, p. 236; Jac., Notes Leyden Mus. vi, 1884, p. 54.
Monolepta rubrosignata Boheman, 'Eugenies' resa, Col. 1859, p. 182.
Monolepta bifasciata Fab., Jac., Notes Leyden Mus. vi, 1884, p. 53; Hornst., Weise, Philipp. Journ. Sci., Sect. D, v, 1910, p. 225.
Monolepta quadrinotata Fab., Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 284.

Resembles the genotype in form and structural characters. General colour shining pale brown, sides of breast fuscous and abdominal segments paler, antennæ and legs slightly darker in some examples. The conspicuous feature that

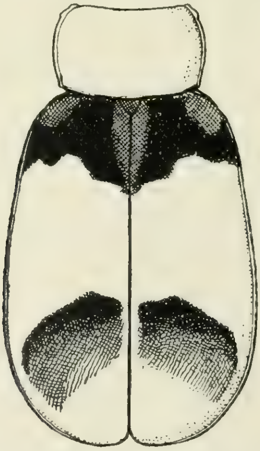

Fig. 108.—*Monolepta bifasciata* (Hornstedt).

distinguishes this species is as follows :—Across the base of the elytra is a dark red band which stains the extreme basal margin and the lateral margin below the humerus. The colour on each humerus and along the suture lighter red, standing out prominently from the darker background colour. In the middle and on each side of the suture the band extends longitudinally, the margin of the extended portion being uniformly rounded. Behind the middle but not quite on the apical area on each elytron is a dark red oblique band which does not reach the margin. The dark red colour becomes lighter towards the edges, where it is diffuse and ill defined. The two bands on each elytron may form one band across both elytra ; sometimes they extend longitudinally and together form a large transversely ovate patch ; in other examples they are considerably reduced almost to two spots. In no case have these preapical patches reached the apical margin. In one example from Sumatra in the collection of the British Museum the elytral patches are black without any red tint.

Length, 3·5–4 mm. ; *breadth*, 2–2·25 mm.

Distribution. This species has a wide distribution extending from India eastwards. MALABAR. CEYLON : Kandy, vi. 1908 (*G. E. Bryant*) ; Henaratgoda, xii. 1889 (*H. P. Green*). PENANG. SUMATRA. SINGAPORE.

Type location unknown to me. Numerous examples in the British Museum.

236. **Monolepta trifasciata** Jacoby.

Monolepta trifasciata Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 295.

Body oblong with the apex rounded. General colour brown with the following parts black or piceous :—Upper surface of head behind the interocular transverse channel black, front part of head dark brown or piceous ; antennæ piceous (except three or four basal segments which are brown) ; basal margin of elytra covering the scutellum and a certain area beyond it, a postmedian band from the suture to the lateral margin, an apical band continuous with a narrow marginal stripe all round and with the suture which is also narrowly stained ; and the breast and sometimes the tibiæ and tarsi black. The colour varies in its intensity ; the bands also vary, in one example there are signs of the breaking up of the basal band and of the separation of the postmedian from the suture.

Head : upper surface impunctate ; the channel behind the frontal tubercles more pronounced than in the genotype. *Prothorax* : upper surface convex, smooth, seen under a high magnification indistinctly punctate, punctures rather close together. *Elytra* : more distinctly punctate, punctures somewhat larger than those of the pronotum. *Underside*: the hind tarsus slightly shorter than the hind tibia.

Length, 3 mm.; *breadth*, 2 mm.

Distribution. BOMBAY: Belgaum. BENGAL: Mandar.

Type in the British Museum.

237. **Monolepta signata** (Olivier).

Galeruca signata Ol., Entomologie, vi, 1808, p. 665, no. 93, pl. 5, fig. 89.
Crioceris neglecta Sahlberg, in Thon, Ent. Arch. ii, 1, 1829, p. 29, pl. 2, fig. 36.
Luperodes quadripustulatus Motsch., Études Ent. vii, 1858, p. 105; Jac., Proc. Zool. Soc. Lond. 1887, p. 109.
Monolepta signata Ol., Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 229; Duvivier, Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. cliii; Ann. Soc. Ent. Belg. xxxvi, 1892, p. 444.
Monolepta neglecta Sahlb., Weise, Tijdschr. Ent. lxv, 1922, p. 102.

Resembles the genotype in form and structure, but not so distinctly narrowed towards the apex which is somewhat broad. Antenna extending almost to the apex of elytron. Head, pronotum, legs and abdominal sternites reddish-brown: antenna (except the three basal segments which are brown) blackish: breast and markings on elytra black; elytra pale brown with the black markings as follows:—Margins all round narrowly stained, a stripe along suture, humerus completely covered, a median transverse band extended considerably in a longitudinal direction (sometimes occupying a large portion of the elytral surface) and an apical

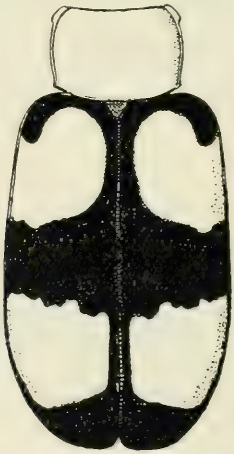

Fig. 109.—*Monolepta signata* (Olivier).

patch. All these markings are completely united with one another, the black colour being continuous. In some cases tibiæ and tarsi are fuscous.

Length, 3·5 mm. ; *breadth*, 2·5 mm.

Distribution. DECCAN. MALABAR. ASSAM : Sadyia (*Doherty*). Also occurs in SIAM. HONG-KONG.

Type location unknown to me. Numerous examples in the British Museum.

Variation.—In the collection of the British Museum there are many specimens from Ceylon which resemble this species but in the pattern on the elytra have the following additional elements :—A longitudinal streak from the humerus joins the median band dividing the basal brown area into two oval patches. The median band has extended longitudinally along the sutural line while narrowing laterally where it may meet the marginal stripe. The patch on the apical area is not so broad as in *signata*.

The elytral pattern of this variety could be derived from that of *signata*. I do not, therefore, propose to give a new name to the Ceylon variety.

Distribution. CEYLON : Hambantota, ix. 1890 (*H. P. Green*) ; Peradeniya, 26. xii. 1907 ; Weligama, ii. 1906 (*T. B. Fletcher*).

238. **Monolepta hieroglypgica** (Motschulsky).

Luperodes hieroglyphicus Motsch., Études Ent. vii, 1858, p. 104.
Monolepta elegantula Boheman, 'Eugenies' resa, 1859, p. 183 ; Jacoby, Ann. Mus. Civ. Genova, xxvii, 1889, p. 226.
Luperodes quadriguttata Fairmaire, Revue d'Ent. vi, 1887, p. 333.
Monolepta biarcuata Weise, Horae Soc. Ent. Ross, xxiii, 1889, pp. 569 & 632 ; Tijdschr. Ent. lxv, 1922, p. 104.
Monolepta simplex Weise, Philipp. Journ. Sci. viii, 3 D, 1913, p. 229.
Monolepta hieroglyphica Motsch., Weise, Tijdschr. Ent. lxv, 1922, p. 104.

Resembles the genotype in form and structural characters. General colour brown, sometimes head and pronotum reddish ; breast black ; antenna (except the basal segments which are brown), apices of tibiæ and tarsi blackish ; elytra with the following characteristic black pattern :—Basal margin, humerus, basal half of lateral margin, a median band across both elytra and basal half of suture ; all these stained parts are continuous, so that the effect of the pattern is to isolate a basal brown area on each elytron. In most examples there is a tendency towards a backward extension of the humeral patch, and sometimes a fine streak from the humerus extends backwards and may join the median band. The front and hind edges of the median band are uneven ; in some cases from the middle of the hind edges two longitudinal arms (one on each elytron) extend towards but do not quite reach the apical area. When these are well developed each is slightly curved outward, ending in a rounded knob ; but in many examples these markings are not well developed although some portions can be recognized.

The antennæ and legs are long and slender.

Length, 4·5 mm. ; *breadth*, 2·5 mm.

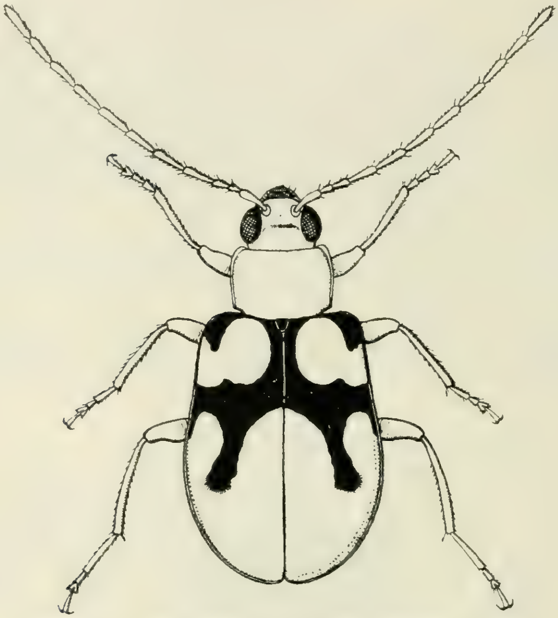

Fig. 110.—*Monolepta hieroglyphica* (Motschulsky).

Distribution. BURMA : Tenasserim (*Doherty*) ; Bhamo (*Fea*). Also occurs in SINGAPORE, SUMATRA, PHILIPPINE ISLANDS, CHINA.

Type locations unknown to me. Numerous examples in the British Museum.

This species is easily identifiable by the characteristic black pattern on the elytra.

239. **Monolepta picturata** Jacoby.

Monolepta picturata Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 292.

Resembles the genotype in form and in structural characters. Head, prothorax and abdominal segments red, this colour in some examples diluted to brown ; labrum and antennæ (except three basal segments which are brown) black ; femora dark to light brown, tibiæ and tarsi blackish: elytra with the following pattern of yellow-brown and black markings:—Margins all round, including the base, sides, apex, and the suture, with black stripe; a median band extends from side to side crossing the suture: a postmedian band on each elytron commencing at the side extends to the middle only and does not reach the suture: a longitudinal stripe from the humerus to the median band on each elytron divides the basal brown background colour of elytra into two longitudinally ovate patches, four in all occupying the basal area of elytra: in continuation with the humeral stripe but slightly displaced inwards is a stripe which meets the postmedian band almost at right angles, enclosing a lateral brown area. Thus there are altogether six completely enclosed brown areas and two large areas, each of the latter being narrow and elongate, along the outer side of the suture and widening considerably on the apical surface.

Head: upper surface impunctate. Antenna extending to the middle of elytron; first segment very long; third short but longer than second; fourth much longer than third. *Prothorax*: upper surface convex, smooth and indistinctly punctate. *Elytra*: somewhat more distinctly punctate, punctures more easily visible on the black than on the brown areas. *Underside*: hind tarsus nearly three-quarters of the hind tibia.

Length, 4 mm.; *breadth*, 2·5 mm.

Distribution. BURMA: Toungoo; Tharrawaddy.

Type in the British Museum.

240. **Monolepta zonula** Weise.

Monolepta zonula Weise, Deutsch. Ent. Zeitschr. 1916, p. 40.
Monolepta albofasciata Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 228.
Monolepta fasciatipennis Jac., loc. cit., xxxii, 1892, p. 983.

Resembles the genotype in form, though somewhat more narrowed behind, and in structural characters. General colour brown; head behind the eyes and labrum black, sometimes head entirely black; scutellum and elytra black, suture posteriorly brown; three apical segments of antenna smoky; a conspicuous white median band across elytra; basal parts of middle and hind femora black, middle femora not always so coloured: tibiæ and tarsi darker brown. The white median band reaches the lateral margin but not the suture. An example before me from Fea's collection shows a modification of the elytral pattern: the prothorax is conspicuously lighter brown. There is a large ill-defined brown area from the basal margin extending to a short distance on the basal portion of the elytral surface: this brown partly covers the humerus and does not quite reach the scutellum.

The latter is brown with the lateral margins black. From about the middle a brown area extends backwards, first narrowly and then broadly, and, widening further, covers the whole of the apical surface including the apical lateral margins. This process makes the posterior edge of the black area behind the white band very indistinct.

Head: upper surface with a few very fine punctures; frontal tubercles and the transverse impression behind them more distinct than in the genotype. Antenna extending to the middle of the elytron; third segment short but slightly longer than second; fourth nearly twice as long as the third and much thicker. *Prothorax*: upper surface convex, smooth, seen under a high magnification indistinctly punctate. *Elytra* closely covered with more distinct but fine punctures. *Underside*: hind tarsus longer than half of the hind tibia.

Length, 4·5 mm.; *breadth*, 2·5 mm.

Distribution. BURMA: Bhamo, viii. 1886 (*Fea*).

One of Fea's examples in the British Museum is marked "Type," but the Genoa Museum may also claim to have the type.

Weise changed the name because Jacoby's names were preoccupied.

241. **Monolepta ceylonica** (Harold).

Ochralea ceylonica Har., Stett. Ent. Zeit. xli, 1880, p. 149.

The following is a translation of Harold's original description in Latin of this species:—Shining, entirely brown, eleventh segment of antenna fuscous, third segment distinctly longer than second, prothorax with the sides suberect, elytra not distinctly and slightly rugosely punctate.

Length, 7 mm.

Distribution. CEYLON (*Nietner*).

Type location unknown to me.

Although the above description is short there are two points which together should serve to distinguish this species. These are: (1) third segment of antenna longer than second; (2) the subrugose character of the elytral punctures. The other species with large bodies have not this latter feature.

242. **Monolepta nigripes** (Olivier).

Galeruca nigripes Olivier, Entomologie, vi, 1808, p. 648, no. 93, pl. iv, fig. 58.
Monolepta concolor Boheman, 'Eugenies' resa, Col. 1859, p. 182; Weise, Tijdschr. Ent. lxv, 1922, p. 105.
Ochralea nigricornis Clark, Ann. Mag. Nat. Hist. (3) xv, 1865, p. 144.
Ochralea nigripes Oliv., Harold, Stett. Ent. Zeit. xli, 1880, p. 147.
Ochralea fulva Baly, Trans. Ent. Soc. Lond. 1886, p. 39.

Body large, oblong, parallel-sided, with the apex rounded.

General colour yellow-brown to dark chocolate-brown; in the type of *nigricornis* the antennæ are brown but the two apical segments smoky; in *nigripes*, of which there are many examples in the British Museum, the whole antennæ (except the three basal segments which share the general colour of the body) are black. In a great number of cases in which the general colour is light brown all tibiæ and tarsi are black. In the dark chocolate-brown variety the tibiæ and tarsi are not black. Baly's *fulva* is of this variety, which resembles the Bornean examples more than it does the Indian ones.

Head: upper surface behind the eyes convex with a median longitudinal impression, very sparsely punctate, punctures fine; frontal tubercles and transverse impression behind them pronounced; clypeus sharply raised in the middle and excavated on each side. Eyes strongly convex. Antenna in comparison with the robustness of the body fine, extending nearly to the apical area of the elytron; third segment short but longer than second; fourth much thicker and about twice the length of the third; fifth very slightly shorter than fourth; the rest nearly equal to one another and becoming slightly thinner towards the apex. *Prothorax* narrowing slightly in front; basal margin widely arched; sides somewhat rounded; upper surface convex, smooth, very finely and closely punctate. *Scutellum* sharply triangular, smooth, impunctate. *Elytra* somewhat broader at base than the prothorax; upper surface very closely punctate, punctures more distinct and more strongly impressed than those of the pronotum. *Underside*: sparsely covered with fine hairs, tibiæ more thickly so; epipleuron very broad in the basal portion, with the surface deeply concave, abruptly narrowed behind the middle and continued extremely narrowly nearly to the apical portion of the elytron; hind tarsus slightly more than half of hind tibia.

Length, 8–10·5 mm.; *breadth*, 4·5–6 mm. *O. fulva* Baly: *length*, 9·5 mm.; *breadth*, 5 mm. *M. concolor* Boh.: *length*, 6 mm.; *breadth*, 3 mm.

Distribution. THE HIMALAYAS. ASSAM: Sylhet. BURMA. CEYLON. MALAY PENINSULA. SIAM. CELEBES. BORNEO. PHILIPPINE ISLANDS.

Types of *nigricornis* Clark and *fulva* Baly in the British Museum. Location of other types unknown to me.

Ochralea nigricornis Clark is the genotype of the genus *Ochralea*.

Owing to its wide distribution this species has received many names; although the colour varies the structural characters are remarkably constant.

243. **Monolepta braeti** (Duvivier).

Luperodes braeti Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 437.

Body oblong, somewhat narrowed towards the apex. Upper side bright dark brown: front part of head, underside of prothorax and legs lighter brown; breast and abdominal sternites black.

Head: upper side behind the interocular transverse channel convex, almost impunctate except for a few punctures in front: frontal tubercles moderately developed; channel behind them well impressed. Antenna long, extending a little beyond the middle of elytron: second and third segments short and equal; fourth nearly four times as long as third; rest of the segments similar to fourth. *Prothorax* nearly twice as broad as long; basal margin widely rounded; sides nearly straight, margins sharp, slightly reflexed: upper surface gently convex from side to side, sparsely punctate, punctures fine, well impressed, more crowded on the lateral areas. *Scutellum* sharply triangular, surface smooth and impunctate. *Elytra* somewhat broader at base than the prothorax; moderately closely covered with punctures which are well impressed and larger than those of pronotum. *Underside*: epipleuron broad at the basal portion, some part of it concave, only slightly narrowed before the middle and continued as such nearly to the apex; hind tarsus nearly three-quarters of hind tibia.

Secondary sexual characters. In ♂ the last visible abdominal segment has a large median depression.

Length, 6·5 mm.; *breadth*, 3 mm.

Distribution. KURSEONG (*P. Braet*).

Type location unknown to me; *paratype* in the British Museum.

244. **Monolepta erythromelas** Weise.

Monolepta erythromeles Weise, Tijdschr. Ent. lxv, 1922, p. 107.
Monolepta pectoralis Harold, Stett. Ent. Zeit. xli, 1880, p. 149.

Body large, parallel-sided, each elytron individually rounded at the apex. Elytra red-brown with the apical area blackish; head, prothorax and scutellum black: antennæ light brown, two apical segments smoky: mouth-parts red or darker, labrum piceous; breast red-brown, abdominal sternites black; legs blackish with a large admixture of red in the femora.

Head: upper surface behind the eyes sparsely punctate, punctures fine, well impressed; a short median longitudinal depression; frontal tubercles well marked; transverse impression behind them deep. Eyes strongly convex.

Antenna fairly robust, extending to the middle of elytron; second and third segments short, equal; fourth about three times as long as third and much stouter; fifth very slightly shorter than fourth but equally thick; the rest of the segments nearly equal to one another; last two segments very slightly thinner. *Prothorax* almost as long as broad, basal margin widely rounded merging with the sides, which are also rounded, and where the basal and lateral margins merge the edge is thickened; upper surface convex, closely punctate, but more closely covered with finer punctures on the sloping surface in front. *Scutellum* long, sharply triangular, impunctate. *Elytra* slightly broader at base than the prothorax; upper surface closely covered with punctures which are somewhat larger than those of the pronotum; under a high magnification finer punctures can be seen to be intermixed with larger ones. *Underside* sparsely covered with fine hairs; epipleuron very broad at base, sharply margined on the inner edge but rounded on the outer surface, concave along the inner portion, abruptly narrowed behind the middle, disappearing a short distance afterwards. Hind tarsus somewhat shorter than the hind tibia.

Length, 9 mm.; *breadth*, 5 mm.

Distribution. INDIA. Also occurs in SUMATRA.

Type location unknown to me. Three examples in the British Museum can undoubtedly be identified as this species.

It will be noticed that it is a large species—a rare occurrence among the species of *Monolepta*—and also that some characters do not conform to the genotype. There is nevertheless a certain resemblance.

245. **Monolepta dividua** Weise.

Monolepta dividua Weise, Tijdschr. Ent. lxv, 1922, p. 107.
Ochralea divisa Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 230.

Body oblong, parallel-sided, convex, subcylindrical. General colour light brown; upper surface of head behind the eyes and labrum black; pronotum whitish; scutellum black; basal and apical thirds of elytral surface black, area between them whitish; breast and last abdominal segment black; abdominal sternites and femora pale brown; tibiæ and tarsi obscure fuscous.

Head impunctate. Antenna nearly two-thirds the length of the body; second and third segments very short, equal. *Prothorax* about one-half broader than long; sides nearly straight; posterior margin rounded, anterior straight; upper surface impunctate. *Elytra* very minutely punctate. *Underside*: first segment of posterior tarsus half the length of posterior tibia.

Length, a little over 6 mm.

Distribution. Burma : Shwegu, x. 1885 (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

Weise gave a new name to this species, for Jacoby's name was preoccupied.

246. **Monolepta rufobasalis** (Jacoby).

Ochralea rufobasalis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 977.

Body oblong, convex, subcylindrical. General colour pale brown, not shining ; elytra with a narrow red band at base, hind margin of band concave.

Head impunctate ; frontal tubercles rather small ; maxillary palpus robust. Antenna extending to nearly two-thirds the length of elytra ; second and third segments small. *Prothorax* one-half broader than long ; sides nearly straight ; posterior margin strongly rounded, the angles distinct but not produced ; upper surface dull, minutely granulate, impunctate. *Scutellum* small. *Elytra* : upper surface extremely closely punctate, with slight traces of longitudinal costæ. *Underside* : epipleuron continued very narrowly behind the middle ; first segment of posterior tarsus half the length of posterior tibia.

Length, a little over 7 mm.

Distribution. Burma : Karen Mts. (*Fea*).

Described from one example.

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original account in English.

247. **Monolepta constricticollis** (Jacoby).

Luperus constricticollis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 949.

Body oblong, rounded towards the apex. General colour shining black ; legs brownish, points of articulation darker ; antennæ (except apex of first and second and third segments, which are lighter) piceous.

Head broad, impunctate above, interocular space broad with a shallow median depression, frontal tubercles well developed with a median longitudinal impression between them and a transverse short impression behind. Antenna moderately stout, more so towards the apex, extending to the middle of the elytron ; the club-shaped structure of first segment marked ; second and third short, nearly equal ; fourth longer than third ; fifth very slightly shorter than fourth ; sixth shorter than fifth ; from seventh to tenth the segments are somewhat thicker and nearly equal to one another; eleventh with its pointed apex slightly longer. *Prothorax* quadrate, constricted at the base; sides slightly convex at about the middle; basal margin bisinuate; posterior lateral angles much more thickened than the anterior ones; upper surface convex from side to side, impunctate. *Scutellum* broad with the apex widely rounded, surface smooth, impunctate. *Elytra* much broader at base than the prothorax; upper surface impunctate, under a high magnification in a suitable light a few very minute punctures are visible; a few scattered, short, erect whitish hairs on the lateral apical area. *Underside*: epipleuron broad at base, abruptly narrowed behind the middle, continued very narrowly for a short distance but not to the apex; hind tarsi about half the length of hind tibia, although the first segment is not as long as is usual in *Monolepta*.

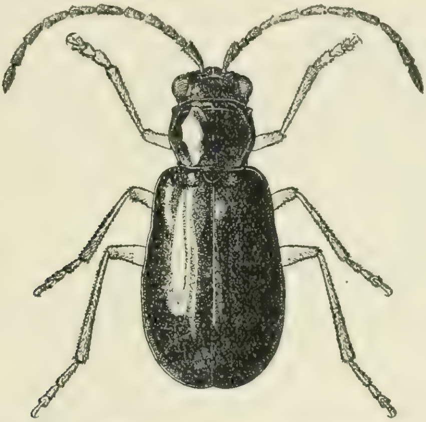

Fig. 111.—*Monolepta constricticollis* (Jacoby).

Length, 3 mm.; *breadth*, 1·5 mm.

Distribution. BURMA: Karen Mts., xii. 1888 (*Fea*).

Type in the British Museum.

This species is included in this genus with considerable reserve.

248. **Monolepta puncticollis** (Jacoby).

Luperus puncticollis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 277.

Body small, oblong, somewhat narrowed towards the apex. Completely dark brown, often the pronotum is slightly lighter than the elytra.

Head: upper surface behind the frontal tubercles smooth and impunctate; frontal tubercles well developed; transverse channel behind them well impressed but not continued to the eye-margin: interocular space broad, eye-facets strongly marked. Antenna moderately stout, extending to a short distance beyond the middle of elytron; first segment very long: second very slightly shorter than third; fourth somewhat longer than third: from the fifth the segments are nearly equal to one another, the apical three or four segments becoming slightly shorter. *Prothorax* broader than long: sides uniformly rounded with the margins sharp and slightly explanate: basal margin widely rounded; upper surface uniformly convex from side to side and moderately closely covered with well-impressed and comparatvely large punctures. *Scutellum* sharply triangular, smooth, impunctate. *Elytra* somewhat broader at base than the prothorax: a certain basal area on each side of the scutellum somewhat convex; upper surface more closely covered with punctures which are slightly larger than those on the pronotum. *Underside*: epipleuron continued very narrowly to the apex: hind tarsus does not possess the character peculiar to *Monolepta*.

Length, 3·5 mm.; *breadth*, 1·75 mm.

Distribution. BOMBAY: Belgaum (Andrewes Coll.).

Type in the British Museum.

The present species is included in this genus for the sake of convenience. Its proper position requires further consideration.

The following species cannot be determined at present. The descriptions given are free translations from the originals in French or Latin, and are inserted here for the sake of completeness.

Cnecodes maculicollis Motschulsky.

Cnecodes maculicollis Motsch., Études Ent. vii, 1858, p. 100.

Somewhat smaller in form and one-quarter shorter than *Cnecodes bisignatus*: colour testaceous but more reddish, brighter and with an oblong patch in the middle of the pronotum, tarsi and metathorax more or less blackish. The scutellum is deeply black and shining. The pronotum is somewhat narrower and straighter behind with posterior angles less prominent.

Distribution. BURMA.

Type in the Moscow University Museum.

Luperodes basalis Motschulsky.

Luperodes basalis Motsch., Études Ent. vii, 1858, p. 105.

Similar to *alboplagiatus* in form but shorter and proportionately broader. The general colour is brown; the eyes, the base of the front, the last apical segment of antenna, the base of elytra including the humeral angles, the scutellum, the anterior part of suture, the basal portion of femur, the lower part of tibia, the two basal segments of tarsus and the metathorax are black. As compared with *alboplagiatus* the prothorax is broader and the posterior angles are straighter ; the general punctation is less pronounced.

Distribution. INDIA ORIENTALI.

Type in the Moscow University Museum.

Luperodes nigrocinctus Motschulsky.

Luperodes nigrocinctus Motsch., Études Ent. vii, 1858, p. 103.

Resembles *L. alboplagiatus* in the oval form, but three times larger. General colour whitish-testaceous, nine apical segments of antenna, tibiæ, two basal segments of tarsus and above all the metathorax darker ; the external margins of elytra, the base and the suture are very narrowly black. The scutellum is triangular, smooth, more or less brown testaceous. Antennæ shorter than the body. Pronotum distinctly transverse, somewhat rugosely punctate ; sides slightly rounded and margined and appear to be somewhat oblique ; posterior angles almost straight and the extremity uniformly produced. Elytra a little broader than and four times as long as the prothorax, punctures a little more perceptible. Last segment of the abdomen with a longitudinal impression bordered on each side by a little carina.

Distribution. INDIA ORIENTALI.

Type in the Moscow University Museum.

Luperodes dorsalis Motschulsky.

Luperodes dorsalis Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, pt. 1, no. 2, p. 415.

In form and colour resembles *L. quadripustulatus* but somewhat smaller and with the dorsal patch fuscous. Ovate, convex, shining, pale testaceous ; head and prothorax reddish ; scutellum, suture and three-branched dorsal patch blackish-fuscous ; body underneath, apical portion of antenna, margins of elytra, tibiæ and tarsi fuscous.

Length, about 2 5 mm. ; *breadth*, 2 mm.

Distribution. CEYLON : Nuwara Eliya.

Type in the Moscow University Museum.

Luperus livens Weise.

Luperus livens Weise, in Junk & Schenkling, Col. Cat. 78, Berlin 30. v. 1924, p. 119.

Calomicrus lividus Motsch., Bull. Soc. Nat. Mosc. xxxix, 1856, pt. i, no. 2, p. 415 (nec Joannis).

Resembles *Calomicrus circumfusus* but with the legs pale. Body elongate, subparallel, shining, pale testaceous ; eyes, scutellum and suture black; antennæ and mesothorax fuscous; prothorax subtransverse with the margins black, upper surface with a little depression on each side; elytra nearly twice as broad as and four times as long as the prothorax, rugose-punctate.

Length, about 2·5 mm.; *breadth*, about 1 mm.

Distribution. CEYLON: Nuwara Eliya.

Type in the Moscow University Museum.

Luperus cœruleipennis Motschulsky.

Luperus cœruleipennis Motsch., Bull. Soc. Nat. Mosc. xxix, 1866, pt. 1, no. 2, p. 413.

Resembles *L. pyrennæus* but smaller and shorter. Elongate subovate, convex, shining; head, base of antenna, prothorax, scutellum and legs pale brown; elytra blue, very finely punctate; apical portion of antenna and underside of body black.

Length, 3 mm.; *breadth*, about 1·25 mm.

Distribution. CEYLON: Nuwara Eliya.

Type in the Moscow University Museum.

Crioceris rubra Gyllenhal.

Crioceris rubra Gyllenhal, in Schönherr, Synonymia Insectorum, i, 2, 1808, p. 272.

Body above deep red; elytra subpunctate, posterior portion black; antennæ and legs pale; body underneath black, hairy.

Distribution. INDIA ORIENTALI (*Dom. Gröndal & J. Lund*).

Calomicrus flavovittis Motschulsky.

Calomicrus flavovittis Motsch., Études Ent. vii, 1858, p. 101.
Luperus flavovittis Motsch., Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 213.

Body small, oblong, rounded towards the apex. General colour shining brown with the following parts black to pitch-brown:—Area on the vertex of head often, the basal border diffusedly but without covering the scutellum, a longitudinal stripe on each elytron from humerus towards the apex, suture. The median lateral stripes on the elytra and the sutural black may be very reduced or they may be very broad, covering a considerable portion of elytral surface and meeting on the apical area, with the result that a brown stripe on each side of the suture is enclosed on each elytron.

Head broad, upper surface behind the interocular channel smooth, impunctate; frontal tubercles not very well developed;

interocular transverse channel well impressed, extending to the eye-margin on each side. Antenna moderately stout, extending to the middle of elytron ; second segment short ; third longer than second ; from the third to the end the segments are nearly equal to one another, and on the whole they give an impression of being progressively thickened although without attaining a climax. *Prothorax* broader than long ; basal margin very slightly emarginate in the middle, straight or slightly sinuate, oblique near the angles ; sides almost straight or very gently rounded, margins thick, slightly reflexed ; anterior lateral angles thickened ; upper surface convex from side to side, moderately closely covered with a mixture of finer and coarser punctures, more crowded on the sloping surface in front. *Scutellum* broadly triangular, with the apex widely rounded, smooth, impunctate. *Elytra* somewhat broader at base than the prothorax ; upper surface moderately closely covered with a mixture of finer and coarser punctures which are much finer on the apical area and show a tendency on the median area towards a longitudinal serial arrangement. *Underside* : epipleuron broad, hardly narrowed behind the middle, becomes vertical after the middle, disappearing as the apex is approached ; hind tarsus is not of the type which is peculiar to *Monolepta*.

Length, 3·5 mm. ; *breadth*, 2 mm.

Distribution. BURMA : Toungoo, x. 1885 (*Fea*).

Type in the Moscow University Museum.

Calomicrus bilineatus Motschulsky.

Calomicrus bilineatus Motsch., Études Ent. vii, 1858, p. 101.

In describing this species the writer compares it with *C. flavovittis*, which it resembles in form although a little more convex. It is testaceous in colour, having on each elytron a narrow, longitudinal black line which, commencing from the humeral angle, proceeds obliquely towards the middle and at a point nearly two-thirds the length of the elytron recurves towards the lateral margin but without actually reaching it. The suture a little beyond the scutellum and the exterior margins are narrowly black. The tarsi and the base of antennæ smoky. The eight apical segments of antenna are more blackish. The pronotum is somewhat narrower than that of *C. flavovittis* and the elytra more coarsely punctate.

Distribution. BURMA.

Type in the Moscow University Museum.

SECTION IV. E. (Wings present. Elytral punctures confused; if in some cases striated, the striæ not like those described under B. Pronotum with depression or depressions or at least with some trace of them.)

MONOLEPTA Erichson (*concluded*).

In the following key the species of *Monolepta* in which the pronotum shows some kind of depression are tabulated.

The characters of *Monolepta* already enumerated will differentiate it from the genera that follow this section of *Monolepta*.

Key to the Species.

1.	Elytra with a clothing of fine greyish hairs.	*M. pilosa* (Jac.), p. 426.
	Elytra without such clothing	2.
2.	Elytra unicoloured	3.
	Elytra with more than one colour: at least the basal margin, humerus, lateral margins, suture or apical area or margin coloured differently from the ground-colour of the elytra	13.
3.	Elytra and pronotum concolorous	4.
	Elytra and pronotum with different colours.	10.
4.	Elytra entirely dark brown with reddish tint, dull; 6·75–7× 3·5 mm.	*M. straminea* (Har.), [p. 426.
	No such combination of characters	5.
5.	Insect entirely pale brown; rounded towards the apex; 4·5× 2·5 mm.	*M. labiata* (Jac.), [p. 428.
	No such combination of characters	6.
6.	Insect entirely brown, somewhat narrowed towards the apex; 4× 2 mm.	*M. testacea* (Jac.), [p. 428.
	No such combination of characters	7.
7.	Insect dirty brown, parallel-sided with the apex rounded; all tibiæ and tarsi black; 5·5× 3 mm.	*M. nigrilabris* (Jac.), [p. 429.
	No such combination of characters	8.
8.	Insect entirely shining brown, including the legs; 5·25–5·5× 2·75 mm.	*M. bengalensis* (Ws.), [p. 429.
	No such combination of characters	9.
9.	Insect black, head red to red-brown: 4–4·5× 2–2·5 mm.	*M. erythrocephala* [(Baly), p. 430.
	Insect entirely light brown; 3× 1·5 mm.	*M. severini* (Jac.), [p. 431.
10.	Elytra black.	11.
	Elytra piceous	12.
	Elytra greenish with bronzy sheen, prothorax and head red-brown; 4–5× 2·25–2·5 mm.	*M. flaviventris* Jac., [p. 431.
	Elytra light brown, head, pronotum and scutellum black to piceous; 5× 2·25 mm.	*M. piceicollis* (Jac.), [p. 432.
11.	Head, antenna, prothorax and legs bright brown; 4–5× 2–3 mm.	*M. andrewesi* Jac., [p. 433.
	Head and prothorax bright brown, antennæ and legs black; 4× 2 mm.	*M. nigrimana* Jac., [p. 433.
12.	Elytral punctures finer; 4× 2·5 mm.	*M. fuscipennis* (Jac.), [p. 434.
	Elytral punctures coarse and coalescing to produce pits; 5× 2·5 mm.	*M. multipunctata* (Jac.), [p. 435.

13. Apical area of elytra black ; 5× 2·75 mm.. *M. marginipennis* (Jac.), p. 435.

Apical area of elytra not black .... 14.

14. Extreme basal margin of elytra, scutellum, prothorax and head black to piceous, elytra light brown ; 5× 2·25 mm. ...... *M. piceicollis* (Jac.), p. 432.

No such combination of characters ...... 15.

15. General colour light brown, head paler, antennæ black except basal segment, scutellum black, elytra nearly white with the extreme basal margin and lateral margin anteriorly black ; breast, tibiæ, tarsi, last visible abdominal segment and pygidium black ; a little over 3 mm. long. *M. pygidialis* (Jac.), p. 436.

No such combination of characters ...... 16.

16. General colour pale brown ; head and prothorax somewhat warmer brown, lower portion of head pale, antennæ black with basal segment dark brown, elytra pale with extreme margins piceous ; tarsi black ; a little over 4 mm. long .. *M. tarsalis* (Jac.), p. 437.

No such combination of characters .... 17.

17. Head and prothorax black ; most of the upper surface of elytra pale brown, the rest black ; 3·25–4× 1·5–2 mm. .... *M. alboplagiata* (Mots.), p. 437.

Head only black, prothorax brown ; general colour dirty brown, elytral margins all round and suture piceous ; 3·5× 2 mm. .... *M. indica* Jac., p. 438.

Head and pronotum brown with stripes and patches ; a longitudinal piceous stripe on the head, fine obsolescent patches on pronotum ; general colour of elytra dark brown, margins of elytra all round, suture, a well-defined roundish spot on each humerus (sometimes with modifications) black ; 7× 4 mm. .... *M. analis* Ws., p. 439.

Head and pronotum completely brown... 18.

18. A large reddish patch covering the basal area of elytra....................... 19.

No such reddish patch on the basal area of elytra .... 20.

19. Elytra with reddish patches in the middle near the suture and on the apical area ; 5× 3 mm. .... *M. monticola* Ws., p. 440.

Elytral surface without any patches except at the base ; 4·5× 2·5 mm............. *M. erratica* (Jac.), p. 441.

20. General colour dark brown or dirty greenish ; margins all round elytra and suture narrowly black ; tarsi black ; 5·5× 3 mm. .... *M. nilgiriensis* Jac., p. 442.

No such combination of characters ...... 21.

21. Body slightly narrowed towards the apex ; general colour dark brown ; a prominent roundish spot covering the humerus, scutellum, suture narrowly, and a small apical area on each elytron at the sutural angles black ; tibiæ and tarsi piceous ; lateral margins of elytra not black or piceous ; 5× 2·5 mm. .... *M. nigrobasalis* Jac., p. 442.

No such combination of characters ...... 22.

22. General colour brown; entire suture narrowly and a fairly broad lateral stripe continued to the basal and apical margins black; 4·5–5× 2–2·5 mm. .... *M. maculosa* [Allard, p. 444.

General colour pale brown; a well-defined border all round the elytra and a short sutural stripe commencing from the scutellum black; slightly broadened behind; 4·25–4·75× 2·5–2·75 mm. ..... *M. limbata* (Oliv.), [p. 444.

249. **Monolepta pilosa** (Jacoby).

Candezea pilosa Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 291.

Body oblong-ovate, slightly narrowed behind. Elytra covered with longish, grey and backwardly directed hairs. General colour brown with the following parts black or piceous:—Labrum piceous; antennæ (except three basal segments which are brown) blackish; humerus, margins all round the elytra and scutellum black; breast, basal portion and inner and outer edges of epipleuron black; tibiæ and tarsi darkish.

Head: upper surface finely granulate; frontal tubercles and transverse channel behind them well marked. Eyes considerably enlarged. Antenna long, slender; second and third segments short, equal; fourth nearly three times as long as the third. *Prothorax* broader than long; basal margin somewhat narrower than the front margin; sides gently rounded, margined, and with some short hairs along the margins; posterior angles acute; upper surface with the background granulate, fairly closely covered with punctures which are not well impressed, on each side of the middle line a large depression. *Scutellum* sharply triangular with the surface finely granulate. *Elytra* broader at base than the prothorax; humerus prominent; upper surface with the background finely granulate, closely covered with well-impressed and moderately large punctures. *Underside*: inner and outer edges of epipleuron sharp and continued narrowly to the apex; hind tarsus nearly three-quarters of the length of hind tibia.

Secondary sexual character. In ♂ (1) the first segment of the tarsus of the anterior leg dilated; (2) the last visible abdominal sternite trilobed.

Length, 4·5 mm.; *breadth*, 2·5 mm.

Distribution. BOMBAY: Belgaum (Andrewes Coll.).

Type in the British Museum.

250. **Monolepta straminea** (Harold).

Ochralea straminea Harold, Stett. Ent. Zeit. xli, 1880, p. 149.

Body oblong-ovate, resembling the genotype in form and structure. General colour dark brown with a reddish tint, pull, not shining. This reddish component is easily discharged.

Head: upper side behind the eyes not convex, sparsely punctate, punctures well impressed; frontal tubercles triangular, not strongly developed but distinct; transverse channel behind them not very strongly impressed. Antenna slender, long, extending to the apex of elytron; second and third segments in the male very small and equal, in the female third slightly longer than second; fourth five or six times as long as third in the male and about three times as long as third in the female; rest of the segments elongate and nearly equal to one another. *Prothorax*: basal margin widely rounded, sides almost straight with the margins slightly reflexed; front angles somewhat thickened; general contour of upper surface convex but surface uneven, closely covered with punctures; on each side of the longitudinal middle line two depressions continuous with one another, in some examples in which these depressions are well defined they have the apices sharply triangular; in the depressions the punctures are coarser. *Scutellum* sharply triangular, shining, smooth and impunctate. *Elytra* broader at base than the prothorax; upper surface coarsely and closely punctate, the punctures coalescing with one another; sides narrowly margined; under a high magnification some isolated short hairs can be seen on the elytra but mostly on the apical area and along the margins. *Underside*: epipleuron abruptly narrowed behind the middle,

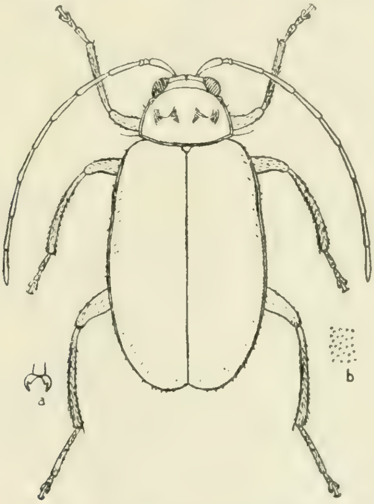

Fig. 112.—*Monolepta straminea* (Harold), ♂. *a*, claws; *b*, enlarged drawing of punctation.

but not so much as in some of the other species, and continued nearly to the apex; hind tarsus somewhat shorter than the hind tibia.

Secondary sexual characters. (1) in ♂ second and third segments of antenna minute and equal, in ♀ third somewhat longer than second; (2) in ♂ the last visible abdominal sternite oblong with a split on each side, in ♀ this sternite narrowed towards the apex.

Length, 6·75–7 mm.; *breadth*, 3·5 mm.

Distribution. CEYLON (*Nietner*); Kandy, vi. 1908, x. 1907.

Type location unknown to me. Many examples in the British Museum.

251. **Monolepta labiata** (Jacoby).

Candezea labiata Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 138.

Body oblong, narrow with the apex rounded. Completely pale brown; front edge of labrum piceous; four or five apical segments of antenna fuscous.

Head: upper surface behind the interocular transverse channel convex, impunctate; frontal tubercles not well developed, separated by the broad base of clypeus; channel behind them well marked. Antenna extending to the middle of elytron; second and third segments short, latter slightly longer than former; fourth one and a half times longer than third; rest of the segments elongate, nearly equal to one another. *Prothorax* broader than long; sides nearly straight; anterior angles slightly thickened; upper surface indistinctly punctate, a shallow depression on each side of the middle. *Scutellum* rather broad, sharply triangular, surface impunctate. *Elytra* broader at base than the prothorax; upper surface closely and indistinctly punctate. *Underside*: epipleuron with the basal broader portion concave; hind tarsus somewhat shorter than the hind tibia.

Length, 4·5 mm.; *breadth*, 2·5 mm.

Distribution. BENGAL: Mandar (*Père Cardon*).

Type in the British Museum.

252. **Monolepta testacea** (Jacoby).

Luperocella testacea Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 119.

Body oblong-ovate, narrowing somewhat towards the apex. Entirely shining brown; antennæ (except three basal segments which are brown) blackish.

Head: upper side behind the interocular transverse channel impunctate; frontal tubercles well developed; transverse channel behind them well impressed. Eyes strongly convex. Antenna long, slender, extending a little beyond the middle of elytron; second and third segments short, equal; fourth three times as long as third; rest of the segments elongate like the fourth except the last three segments which are slightly shorter. *Prothorax*: broader than long, slightly narrowed behind; sides straight, margins slightly explanate; posterior border widely rounded; anterior lateral angles somewhat thickened; posterior broadly rounded, the actual angles slightly produced; upper surface closely covered with indistinct punctures, a shallow depression across the middle. *Scutellum* triangular, surface impunctate. *Elytra* distinctly broader at base than the prothorax; upper surface closely covered with punctures which, though somewhat larger than those of the pronotum, are similar in their indefinite manner of disposition, and this produces a sense of rugosity when examined under a high magnification. *Underside*: epipleuron continued very narrowly to the apex; hind tarsus somewhat shorter than hind tibia.

Length, 4 mm.; *breadth*, 2 mm.

Distribution. MADRAS: Nilgiri Hills (Andrewes Coll.).

Type in the British Museum.

253. **Monolepta nigrilabris** (Jacoby).

Candezea nigrilabris Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 126.

Resembles the genotype in form (but the body somewhat parallel-sided, with the apex rounded) and in structural characters. Completely dirty brown with following parts black:—Labrum, antennæ (except the undersides of two or three basal segments), and all tibiæ and tarsi. This coloration is characteristic.

Head: eyes very large. *Prothorax* almost as broad as long, narrowed in front; upper surface with a very shallow depression on each side; less distinctly punctate than the elytra. *Elytra* comparatively more elongate, slightly convex, upper surface closely and distinctly punctate. *Underside*: each tibia with an apical spine. Hind tarsus very long, only slightly shorter than the hind tibia.

Length, 5·5 mm.; *breadth*, 3 mm.

Distribution. MADRAS: Nilgiri Hills.

Type in the British Museum.

254. **Monolepta bengalensis** (Weise).

Luperodes bengalensis Weise, Ark. f. Zool. xiv, 1, 1921, p. 103.
Luperodes brunneus Jacoby, Ann. Soc. Ent. Belg. xlvii, 1903, p. 118, (nec Crotch).

Body oblong-ovate, somewhat narrowed towards the apex. Completely shining brown which varies from a lighter to a darker shade.

Head broad with the eyes comparatively small; upper surface behind the transverse interocular channel impunctate;

frontal tubercles developed; channel behind them well marked in the middle area but not extending to the eye-margins. Antenna fine, slender, extending nearly to the apical area of elytron; third segment longer than second; fourth nearly twice as long as third; rest of the segments elongate like fourth; ninth slightly shorter. *Prothorax* much broader than long; sides nearly straight, oblique, margins slightly reflexed; basal margin widely rounded; upper surface generally somewhat uneven, a median transverse depression, indistinctly punctate, punctures especially indistinctly impressed in the depression. *Scutellum* sharply triangular, surface smooth and impunctate. *Elytra* slightly broader at base than the prothorax; upper surface fairly closely covered with fine and well-impressed punctures. *Underside*: epipleuron with broad basal portion concave, continued very narrowly nearly to the apex; hind tarsus nearly three-quarters of hind tibia.

Length, 5·25–5·5 mm.; *breadth*, 2·75 mm.

Distribution. MADRAS: Nilgiri Hills. CEYLON: Kandy, ix. 1907.

Type in the British Museum.

Weise gave a new name to this species, for Jacoby's name was preoccupied.

255. **Monolepta erythrocephala** (Baly).

Luperodes erythrocephala Baly, Cist. Ent. ii, 1878, p. 380.
Monolepta fulvifrons Jacoby, Ann. Soc. Ent. Belg. xl, 1896, p. 291.

Body oblong, very slightly broadened behind, apex rounded: entirely shining black with head red or red-brown, labrum black; antennæ and tibiæ sometimes piceous; legs dark red-brown to black. The red head and black body are a characteristic feature.

Head broad, upper surface behind the eyes sparsely punctate, punctures very fine; frontal tubercles moderately developed; transverse impression behind them deep. Antenna extending a little beyond the middle of elytron; from the fourth segment thickly covered with whitish hairs; second and third short, equal in the male, third slightly longer than second in the female; antennæ generally more slender in the female. *Prothorax*: front margin straight, somewhat broader than the hind margin; sides gently rounded; basal margin widely rounded; anterior lateral angles thickened, posterior obtuse; upper surface moderately closely punctate, punctures very fine but well impressed, a shallow median transverse depression. *Scutellum* triangular with the apex acute, surface smooth, impunctate. *Elytra* somewhat broader at base than the prothorax; humerus prominent with the surface very minutely and sparsely punctate ; upper surface closely and finely punctate, punctures well impressed and stronger than those of the pronotum. *Underside* : epipleuron broad at base, abruptly narrowed behind the middle and continued very narrowly to the apex ; hind tarsus somewhat shorter than the hind tibia.

Secondary sexual character. Difference in the relative lengths of the second and third segments of antenna. See above.

Length, 4·5 mm. ; *breadth*, 2–2·5 mm.

Distribution. UNITED PROVINCES : Solan, 7. viii. 1915 (*H. S. Peake*). PUNJAB : Murree (type-locality of *erythrocephala*). KASHGAR.

Types in the British Museum.

256. **Monolepta severini** (Jacoby).

Luperus severini Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 276.

Body small, somewhat widened behind the middle, rounded towards the apex. General colour light brown, antennæ darker brown.

Head : upper surface behind the frontal tubercles smooth, impunctate ; frontal tubercles not well developed ; transverse channel behind them well impressed, extending to the eye-margins. Eyes large. Antenna slender, extending nearly to the apical area of elytron ; second and third short, nearly equal to one another ; fourth about twice as long as third ; from fourth to the end segments nearly equal to one another. *Prothorax* broader than long ; sides slightly convex in front of the middle ; basal margin almost straight or very widely rounded ; posterior lateral angles acute ; upper surface indistinctly and minutely punctate, very shallow depression on each side of the middle line. *Scutellum* sharply triangular, smooth and impunctate. *Elytra* hardly broader at base than the prothorax ; upper surface closely covered with well-impressed punctures. *Underside* : epipleuron very narrowly continued to the apex ; hind tarsus very long, slightly shorter than the hind tibia.

Length nearly 3 mm. ; *breadth*, 1·5 mm.

Distribution. BOMBAY : Belgaum (Andrewes Coll.). BURMA : Tharrawaddy (Andrewes Coll.).

Type in the British Museum.

257. **Monolepta flaviventris** Jacoby.

Monolepta flaviventris Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 127.

Body oblong, slightly broadened behind, apex rounded. Head and prothorax red ; antennæ, legs and breast black ;

abdominal sternites brown: scutellum blackish; elytra greenish with bronzy sheen.

Head: upper surface behind the eyes sparsely punctate, punctures fine and well impressed; frontal tubercles recognizable, though not strongly raised; transverse channel behind them well impressed. Antenna slender, extending to the apical area of elytron: second and third segments short, equal; fourth nearly twice as long as third; rest of the segments nearly equal to one another, the last two slightly shorter. *Prothorax*: basal margin slightly narrower than front margin; sides nearly straight, margins slightly reflexed; upper surface closely punctate; a depression on the central area on each side of the longitudinal middle line. *Scutellum* triangular with the apex rounded, surface impunctate. *Elytra* broader at base than the prothorax; humerus convex; upper surface strongly and closely punctate, punctures coarse, often coalescing to produce a rugosity. *Underside*: epipleuron broad at base, abruptly narrowed behind the middle and continued very narrowly to the apex, inner and outer edges sharp; legs longish; hind tarsus somewhat shorter than the hind tibia.

Length, 4–5 mm.; *breadth*, 2·25–2·5 mm.

Distribution. MADRAS: Nilgiri Hills (Andrewes Coll.).

Type in the British Museum.

258. **Monolepta piceicollis** (Jacoby).

Luperodes piceicollis Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 212.

Body oblong, rounded at the apex. General colour yellow-brown; head, prothorax, breast, basal portion of epipleuron and extreme basal edge of elytron black to piceous; in some cases the lateral margin of elytron, corresponding to the basal part of epipleuron, is similarly black to piceous, but in other examples it possesses the general yellow-brown colour. Antennæ somewhat darker brown with the last three segments blackish, in one case only the last segment blackish.

Head: upper surface behind the interocular channel smooth, sparsely covered with well-impressed and fine punctures; frontal tubercles developed, well defined; transverse channel behind them well impressed and continuing for a short distance along the eye-margin; surface of the wedge-shaped posterior end of clypeus with a few well-impressed punctures. Eyes very large. Antenna extending a little beyond the middle of elytron; second and third segments short, equal; fourth about twice as long as third; rest of the segments nearly equal to one another, last two segments slightly shorter. *Prothorax*: sides straight with a very slight convexity in front of the middle, margins slightly reflexed ; base widely rounded ; upper surface convex, covered with a mixture of very fine and comparatively large punctures, sparsely distributed without any definite grouping, a very shallow depression on each side of the longitudinal middle line. *Scutellum* sharply triangular, surface smooth, impunctate. *Elytra* slightly broader at base than the prothorax ; moderately closely covered with strongly impressed punctures, those on the apical area finer and not strongly impressed ; in the interstices are a few much finer punctures at least on the basal area. *Underside* : epipleuron continued narrowly to the apex ; hind tarsus somewhat shorter than hind tibia.

Secondary sexual character. In ♀ the third segment of antenna slightly longer than second.

Length, 5 mm. ; *breadth*, 2·25 mm.

Distribution. BURMA : Karen Mts., v.–xii. 1888 (*Fea*).

Type in the British Museum.

259. **Monolepta andrewesi** Jacoby.

Monolepta andrewesi Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 293.

Body oblong, somewhat broadened behind. Head, antennæ, prothorax and legs bright brown ; scutellum, elytra and breast black, abdominal sternites sometimes piceous and sometimes partly black ; upper side shining.

Head : upper surface behind the eyes impunctate ; interocular space somewhat depressed in the middle ; transverse channel behind the tubercles well impressed ; latter comparatively small, not very pronounced. Antenna extending a short distance beyond the middle ; second and third segments short and almost equal ; fourth nearly twice as long as second ; rest of the segments nearly equal to one another. *Prothorax* : basal margin widely rounded ; sides rounded, upper surface nearly flat in the middle area and faintly depressed on each side of the flat area ; closely and finely punctate. *Elytra* finely and very closely punctate. *Underside* : hind tarsus nearly three-quarters of hind tibia.

Length, 4–5 mm. ; *breadth*, a little over 2–3 mm.

Distribution. BOMBAY : Belgaum, Kanara (Andrewes Coll.).

Type in the British Museum.

260. **Monolepta nigrimana** Jacoby.

Monolepta nigrimana Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 404.

Body oblong, rounded towards the apex. Head and prothorax bright brown ; basal segment of antenna and points of articulation between femora and tibiæ brown to piceous; abdominal sternites generally brown but with ill-defined areas in the middle piceous; antennæ, scutellum and elytra black; legs black.

Head: upper surface behind the eyes finely and sparsely punctate; transverse impression behind the frontal tubercles very deep; latter not very pronounced but recognizable. Antenna slender, long, extending to the apical area of the elytron; second and third segments short, latter slightly longer than former; fourth about one and half times longer than third. *Prothorax*: sides gently rounded with the margins slightly explanate and reflexed; anterior angles thickened, at the posterior angles the seta-bearing pores lie on the reflexed margin; upper surface finely and indistinctly punctate, a very shallow depression on the central area at each side of the middle. *Scutellum* triangular with the apex rounded, surface smooth, impunctate. *Elytra* broader at base than the prothorax; sides narrowly margined; upper surface closely covered with punctures which are well impressed, comparatively large and in some places obsolescent. *Underside*: epipleuron abruptly narrowed behind the middle and continued very nearly to the apex, surface of the broad basal area uneven; hind tarsus almost as long as the hind tibia.

Length, 4 mm.; *breadth*, 2 mm.

Distribution. MADRAS: Nilgiri Hills (*H. L. Andrewes*).

Type in the British Museum.

261. **Monolepta fuscipennis** (Jacoby).

Candezea fuscipennis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 290.

Body oblong with the apex rounded. Jacoby writes that the apices of elytra are pointed; I have examined his specimens and I find that the apex looks pointed because it has curled up when the insect was killed while still soft after emergence from the pupal case; the pointed condition is not a structural character. General colour light brown; elytra dark piceous to shining brown.

Head: upper surface behind the interocular transverse channel impunctate; frontal tubercles not well developed; channel behind them well marked. Antenna extending a little beyond the middle of elytron; second and third segments short, equal; fourth more than twice as long as third; rest of the segments elongate and nearly equal to one another. *Prothorax* much broader than long; lateral margins nearly straight; posterior margin widely rounded; anterior angles slightly thickened; upper surface with a shallow depression on each side of the middle, sparsely and indistinctly punctate.

Scutellum broader than long, surface smooth and impunctate. *Elytra* somewhat broader at base than the prothorax : upper surface not very sparsely punctate, punctures not very large but distinct and well impressed. *Underside* : epipleuron with basal broad portion concave ; hind tarsus somewhat shorter than hind tibia.

Length, 4 mm. : *breadth*, 2·5 mm.

Distribution. BOMBAY : Belgaum, Kanara (Andrewes Coll.).

Type in the British Museum.

262. **Monolepta multipunctata** (Jacoby).

Candezea multipunctata Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 289.

Resembles the genotype in form and structure. Head, prothorax and legs bright brown, sometimes tibiæ and tarsi darker ; antennæ (except three basal segments which are brown) piceous ; scutellum brown ; elytra shining pitch-brown, sometimes darker and sometimes lighter ; underside black, in some specimens the sides of the abdominal sternites tend to be brown.

Head : upper side behind the interocular transverse channel impunctate but for a few very fine scattered punctures. Antenna extending to the middle of elytron ; second and third segments short, latter longer than former ; fourth one and a half times as long as third. *Prothorax* subquadrate ; sides almost straight ; upper surface closely covered with punctures, on each side of the middle a shallow depression. *Elytra* broader at base than the prothorax ; closely covered with coarse punctures which often coalesce producing larger pits ; in the interstices are finer punctures. *Underside* : epipleuron very narrowly continued nearly to the apex ; hind tarsus somewhat shorter than hind tibia.

Length, 5 mm. ; *breadth*, 2·5 mm.

Distribution. BOMBAY : Belgaum (Andrewes Coll.).

Type in the British Museum.

263. **Monolepta marginipennis** (Jacoby).

Candezea marginipennis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 979.

Body oblong with the apex rounded. General colour shining brown with the following parts piceous or black :—Margins all round the elytra including the epipleura, apical area of elytra, scutellum, breast with its associated pieces, tibiæ and tarsi black ; basal portion of suture piceous or black ; antennæ (except three basal segments which are brown) piceous with the apical portion of each segment blackish. The elytra in some cases are without the black margins, and in some cases the black apical area of elytra extends considerably forwards ; the colour of the underside may be diluted to piceous and the colour of the darker segments of the antenna may be lighter. The colour of the head and pronotum may be mixed with reddish.

Head : upper surface behind the interocular transverse channel impunctate, with a faint longitudinal impression ; frontal tubercles well developed and the transverse channel behind well marked. Antenna long, slender, extending to the apical area of elytron ; second and third segments short, latter nearly twice as long as former ; fourth one and a half times as long as third ; rest of the segments elongate like fourth. *Prothorax* almost quadrate, being slightly broader than long, somewhat narrowed behind ; sides straight ; basal margin slightly sinuate in the middle ; posterior angles rounded in continuation of the base ; upper surface very sparsely and minutely punctate, depressed across the middle. *Scutellum* triangular with the apex rounded, surface smooth and impunctate. *Elytra* distinctly broader at base than the prothorax ; upper surface punctate in the same way as the pronotum and not more distinctly. *Underside* : epipleuron continued very narrowly to the apex ; hind tarsi nearly three-quarters of hind tibia.

Length, 5 mm. ; *breadth*, 2·75 mm.

Distribution. BURMA : Karen Mts., xii. 1888 (*Fea*).

Type in the British Museum.

Jacoby described the species from several examples, and as there is one example in the British Musuem the Genoa Museum may also claim to have the type.

264. **Monolepta pygidialis** (Jacoby).

Luperodes pygidialis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 952.

General colour light brown ; head paler, shining, labrum piceous ; antenna black except the basal segment which shares the general colour of the body ; scutellum black ; elytra nearly white with the extreme basal margin and lateral margin anteriorly black ; epipleuron anteriorly piceous ; breast, tibiæ, tarsi, last visible abdominal segment and pygidium black.

Head impunctate. Antenna extending to a short distance behind the middle ; second and third segments short and equal ; fourth longer than fifth. *Prothorax* subquadrate, one-half broader than long ; sides straight ; upper surface with two shallow depressions in the middle, extremely minutely punctate.

Length, a little over 3 mm.

Distribution. BURMA: Shwegoo, October (*Fea*).

Type in the Genoa Museum.

I have not seen the type. The above description is taken from Jacoby's original account.

265. **Monolepta tarsalis** (Jacoby).

Luperodes tarsalis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 951.

General colour pale brown; head and prothorax somewhat warmer brown, lower portion of head pale, labrum piceous; antenna black with the basal segment dark brown at the base; elytra pale with the extreme margins piceous, epipleuron edged with piceous; tarsi black.

Head scarcely perceptibly punctate, the vertex convex. Antenna extending to a short distance behind the middle; third segment scarcely longer but thinner than second; fourth rather longer than fifth. *Prothorax* twice as broad as long; sides nearly straight; posterior margin scarcely rounded; upper surface obsoletely transversely depressed at each side, finely and irregularly rugosely punctate. *Elytra* very closely and distinctly punctate. *Underside*: epipleuron rather broad anteriorly and continued behind the middle; tibia with an apical spine; first segment of posterior tarsus longer than the following segments together.

Length, a little over 4 mm.

Distribution. BURMA: Bhamo (*Fea*).

Type in the Genoa Museum.

Jacoby described this species from a single specimen. I have not seen the type. The above description is taken from Jacoby's original account.

266. **Monolepta alboplagiata** (Motschulsky).

Luperodes alboplagiatus Motsch., Études Ent. vii, 1858, p. 102.
Luperus nigromarginatus Jac., Proc. Zool. Soc. Lond. 1887, p. 112.

Body oblong, somewhat narrowed towards the apex. General colour shining black to piceous except femora and elytra (almost entirely) which are pale brown. The margins of elytra all round, suture and humerus share the general colour of the body. One example in the collection of the British Museum exhibits a teratological condition with regard to colour in having one elytron completely black while the other retains the normal coloration.

Head: upper surface behind the interocular transverse channel smooth and impunctate; frontal tubercles well developed; channel behind them well impressed, continued for a short distance in a curve along the eye-margin. Eyes very large. Antenna moderately stout, extending nearly to the apical area of elytron ; third segment much longer than second ; fourth about one and a half times as long as third ; rest of the segments nearly equal to one another except the last three which are slightly shorter. *Prothorax* : nearly quadrate or slightly broader than long ; sides almost straight with the margins sharp and slightly reflexed ; basal margin widely rounded : upper surface smooth, sparsely covered with a mixture of finer and comparatively coarser punctures, their distribution uneven, on each side of the middle a shallow depression. *Scutellum* sharply triangular, smooth, impunctate. *Elytra* broader at base than the prothorax ; upper surface sparsely and finely punctate, punctures of the same kind as those on the pronotum. *Underside* : epipleuron continued very narrowly almost to the apex ; hind tarsus nearly three-quarters of hind tibia.

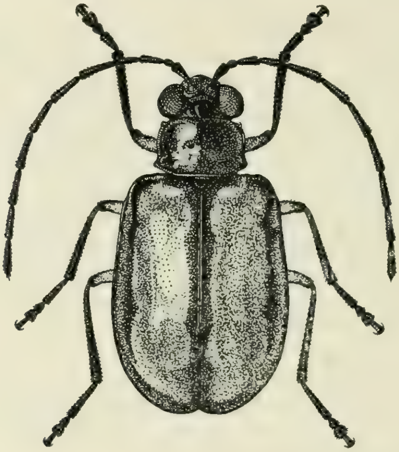

Fig. 113.—*Monolepta alboplagiata* (Motschulsky).

Length, 3·25–4 mm. ; *breadth*, 1·5–2 mm.

Distribution. CEYLON : Kandy, vi. 1908 (*G. E. Bryant*) ; Bogawantalawa, 4,900–5,200 ft., 21. iii.–4. iv. 1882 (*G. Lewis*) ; Dikoya, 3,800–4,200 ft., 21. i.–7. ii. 1882 (*G. Lewis*) ; Galle, coast-level, 27. xi.–4. xii. 1881 (*G. Lewis*).

Type of *alboplagiata* in Moscow University Museum.

Type of *nigromarginatus* in the British Museum.

267. **Monolepta indica** Jacoby.

Monolepta indica Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 296.

Body oblong with the apex rounded. General colour dirty brown ; upper surface of head behind the eyes and breast black; labrum piceous; antenna with four or five basal segments dark brown, the rest of the segments blackish; elytral margins all round and suture diffusedly piceous; scutellum black. The lateral marginal colour stains the epipleuron.

Head: upper surface behind the eyes smooth, impunctate; frontal tubercles well developed; transverse impression behind them deep. Antenna extending a short distance beyond the middle of elytron; second and third segments short and equal; fourth nearly twice as long as third; fifth equal to fourth; sixth shorter than fifth; from the sixth to eleventh the segments are nearly equal to one another. *Prothorax*: sides and posterior margin rounded; upper surface indistinctly punctate, a faint depression on either side of the middle. *Elytra* closely punctate, punctures not very distinct but more so than those of the pronotum, not well impressed. *Underside*: the hind tarsus somewhat shorter than the hind tibia.

Length, 3·5 mm.; *breadth*, 2 mm.

Distribution. BOMBAY: Belgaum. TRAVANCORE: Wallardi.

Type in the British Museum.

In the example from Travancore the intensity of the blackish and black colours is stronger and the basal marginal colour spreads towards the elytral surface and in this process has covered the humerus—a feature not found in the type-example from Belgaum.

268. **Monolepta analis** Weise.

Monolepta analis Weise, Ergebnisse 2. Deutsche Zentr.-Afr.-Exp., Zool. i, 1915, p. 117.

Candezea humeralis Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 125.

Body oblong-ovate, somewhat narrowed behind, convex. General colour light to dark brown with the following parts black or piceous:—Antennæ (except three basal segments which are brown) black; labrum black; a longitudinal piceous stripe on the vertex of head; on the pronotum five obsolescent piceous patches: two short longitudinal stripes on the middle area with a much narrower stripe (almost like a line) behind them on the longitudinal median line and two ill-defined patches, one on each side on the lateral area; all these patches appear to be joined with each other by obsolescent extensions; in some cases the pronotal patches are completely absent, on the other hand there is no example before me in which they are black and form a well-defined group—a condition which I would expect in some cases. Scutellum black; margins all round the elytra narrowly and suture also narrowly black; a well-defined roundish spot covering the summit of humeral convexity; in some cases this has increased in size and is elongated, in these cases in continuation of the longitudinal line from the humerus but without actually joining the humeral patch there are two other short stripes, one antemedian and the other postmedian: the position of these stripes in relation to the humeral patch is such as to suggest that they might have formed one long stripe, although there is no example before me actually showing this condition. Tibiæ and tarsi somewhat darker; inner and outer edges of epipleuron black; sclerites on the breast edged with black; apex of abdomen tipped with black.

Head: upper surface behind the transverse impression in the interocular space punctate; frontal tubercles not well developed but recognizable; transverse impression behind them well marked. Antenna extending to the middle of elytron; second and third segments short, latter slightly longer than former; fourth one and a half times as long as third; rest of the segments nearly equal to one another. *Prothorax* nearly as long as broad, sides gently rounded; basal margin widely rounded; front and hind angles slightly thickened; upper surface closely covered with comparatively coarse punctures, with a shallow depression across the middle. *Scutellum* sharply triangular, surface smooth and impunctate. *Elytra* hardly broader at base than the prothorax; upper surface closely covered with punctures which are of the same kind as those of the pronotum. *Underside*: epipleuron broad at base, narrowed behind the middle but not to a great extent and continued as such to the apex; hind tarsus slightly shorter than hind tibia.

Length, 7 mm.; *breadth*, 4 mm.

Distribution. MADRAS: Nilgiri Hills Anamalais (*H. L. Andrewes*). TRAVANCORE: Wallardi, 5. ix. 1904 (*R. P. Favré*). In this example the humeral spot is obsolescent but has not completely disappeared.

Type in the British Museum.

Weise did not describe this species; he merely gave it a new name because Jacoby's name was preoccupied.

269. **Monolepta monticola** Weise.

Monolepta monticola Weise, Ergebnisse 2. Deutsche Zentr.-Afr.-Exp., Zool. i, 1915, p. 177.

Monolepta centromaculata Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 128.

Body ovate, resembling the genotype in form and in structure. General colour brown with the following reddish markings:— A basal marginal band (which does not stain the scutellum and only partly stains the humerus), a somewhat elongate, ill-defined patch on the suture at the middle and an ill-defined and somewhat elongate patch on the apical area of each elytron. The marginal band at base stains the basal portion of the epipleuron. In one example the basal band has extended longitudinally, completely covering the humerus, similarly the central sutural and apical patches elongating tend to meet each other, and the former the basal band: in this example the reddish colour is more vivid.

Head: upper surface behind the eyes impunctate; frontal tubercles not well developed though distinguishable: transverse impression behind them not very deep. Antenna slender, extending a little beyond the middle of elytron; second and third segments short, latter longer than former; fourth nearly twice as long as third. *Prothorax*: sides almost straight; front margin straight; hind margin gently rounded; upper surface closely and indistinctly punctate, punctures shallow, a very shallow depression on each side of the middle. *Elytra*: upper surface closely punctate, punctures stronger than those of the pronotum, some punctures are larger and shallower than others.

Length, 5 mm.; *breadth*, 3 mm.

Distribution. MADRAS: Nilgiri Hills.

Type in the British Museum.

Weise gave a new name to this species, for Jacoby's name was preoccupied.

270. **Monolepta erratica** (Jacoby).

Candezea erratica Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 137.

Body oblong, round towards the apex. General colour entirely pale brown, sometimes elytra somewhat darker brown; a broad variable reddish patch covering the basal area of elytra including the humerus but not the scutellum, sometimes this patch is considerably reduced; a similar apical patch, sometimes absent; in some cases underside and antennæ (except the three basal segments) blackish.

Head: upper surface behind the eyes impunctate: frontal tubercles convex but not distinctly delimited: transverse impression behind well marked. Antenna extending to a short distance beyond the middle of elytron; second and third segments short, latter very slightly longer than former; fourth twice as long as third. *Prothorax*: sides straight, oblique; front angles slightly thickened; upper surface closely and indistinctly punctate, a very shallow depression on each side of the middle. *Underside*: hind tarsus somewhat shorter than hind tibia.

Length, 4·5 mm.; *breadth*, 2·5 mm.

Distribution. BOMBAY: Belgaum. ASSAM: Khasi Hills (type-locality).

Type in the British Museum.

The example from Belgaum has the underside and antennæ blackish, and on the upper side the basal patch on elytra is present but the apical is absent.

271. **Monolepta nilgiriensis** Jacoby.

Monolepta nilgiriensis Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 403.

Body oblong, slightly broadened behind. General colour dark brown or dirty greenish, with the following parts black or piceous :—Labrum piceous ; antennæ (except three basal segments which are brown) blackish ; scutellum piceous ; margins all round the elytra narrowly and suture also narrowly black ; inner and outer edges of epipleuron black ; tibiæ and tarsi piceous. The brown colour of the body has a mottled appearance ; the greenish specimens are not quite free from it, and it is also seen in a specimen which has a greenish colour which is turning into brown. I believe this mottled character is accidental.

Head : upper surface behind the interocular transverse impression impunctate except for a few fine punctures ; frontal tubercles not well developed ; transverse impression behind them well marked. Antenna extending to the apical area of elytron ; second and third segments short, latter longer than former ; fourth nearly twice as long as third ; rest elongate, nearly equal to one another. *Prothorax* much broader than long ; sides gently rounded ; basal margin widely rounded ; upper surface fairly closely covered with moderately large punctures, on each side of the middle a shallow depression. *Scutellum* sharply triangular, surface smooth and impunctate. *Elytra* broader at base than the prothorax ; upper surface closely covered with coarse punctures which are larger than those of the pronotum. *Underside* : continued very narrowly nearly to the apex ; hind tarsus nearly three-quarters of the hind tibia.

Length, 5·5 mm. ; *breadth*, 3 mm.

Distribution. MADRAS : Nilgiri Hills, caught in July at light (Andrewes Coll.).

Type in the British Museum.

272. **Monolepta nigrobasalis** Jacoby.

Monolepta nigrobasalis Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 127.
Damais humeralis Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 119.

Body oblong-ovate, slightly narrowed towards the apex. General colour shining pale to dark brown with the following parts black :—Labrum, a prominent roundish spot covering the humerus, scutellum, suture narrowly, a small apical area on each elytron at the sutural angles, breast and apical segment of abdomen ; the humeral spot sometimes spreads along the basal margin and also below, staining the basal portion of epipleuron and continuing to the black of the breast. Antennæ (except the basal segment which is brown), tibiæ and tarsi piceous.

Head : upper side behind the eyes impunctate but for a few scattered punctures ; frontal tubercles not well developed ; transverse impression behind them well marked. Antenna slender, extending to the apical area of the elytron ; second and third segments short, latter slightly longer than former ; fourth nearly twice as long as the second ; rest elongate and nearly equal to one another. *Prothorax* : broader than long ; sides oblique, straight ; basal margin widely rounded ; front angle somewhat thickened ; upper surface closely covered with coarse punctures, on each side of the middle a depression, sometimes the two depressions coalescing form a single large depression extending across the middle. *Scutellum* triangular with the apex rounded, surface smooth and impunctate. *Elytra* broader at base than the prothorax ; upper surface closely covered with coarse punctures which are of the same type as those of the pronotum. *Underside* : the broad basal portion of epipleuron concave, continued very narrowly nearly to the apex ; hind tarsus somewhat shorter than the hind tibia.

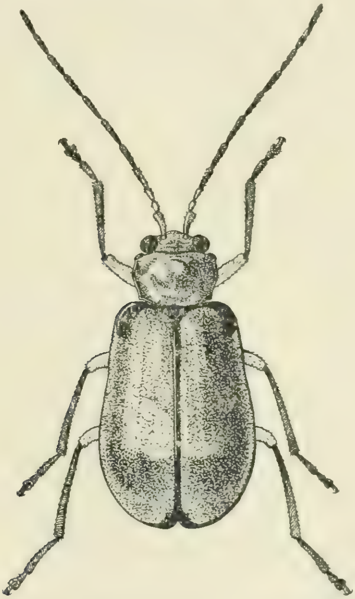

Fig. 114.—*Monolepta nigrobasalis* Jacoby.

Length, 5 mm. ; *breadth*, 2·5 mm.

Distribution. Madras : Nilgiri Hills (*H. L. Andrewes*).

Type of *nigrobasalis* in the British Museum.

Type of *Damais humeralis* also in the British Museum.

273. **Monolepta maculosa** Allard.

Monolepta maculosa Allard, Comptes-Rendus Soc. Ent. Belg. 1890, p. xcii ; Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 294.

Body oblong with apex rounded. General colour brown with the following parts black or piceous :—Breast and abdominal sternites ; suture narrowly ; a fairly broad lateral stripe continued to the basal and apical margins, the basal marginal band does not stain either the humerus or the scutellum ; apical segments of antennæ somewhat darker than the proximal ones. The basal black band is usually fairly large, but sometimes is completely absent. The sutural stripe may be distinctly broad. Sometimes the elytra are completely free of any black or piceous colour, in these examples the underside is piceous. In the reduction of the black parts there is no definite correlation ; when one part is reduced others are not.

Head : upper surface behind the eyes impunctate ; frontal tubercles not well developed but recognizable ; transverse impression behind them not very deep. Antenna extending to the apical area of elytron ; second and third segments short, latter slightly longer than former ; fourth one and a half times as long as third ; rest almost equal to one another. *Prothorax* : sides oblique, straight ; upper surface indistinctly punctate, punctures fairly large ; a shallow depression on each side of the middle. *Elytra* broader at base than the prothorax ; upper surface closely punctate, punctures large, shallow and often coalesce with one another. *Underside* : hind tarsus somewhat shorter than hind tibia.

Length, 4·5–5 mm. ; *breadth*, 2–2·5 mm.

Distribution. Bombay : Belgaum ; Kanara.

Type location unknown to me. One of Jacoby's examples (Belgaum) with his identification label is in the British Museum.

274. **Monolepta limbata** (Olivier).

Altica limbata Olivier, Entomologie, vi, 1808, p. 691, no. 93 bis. pl. 2, fig. 39.

Body oblong, slightly broadened behind. General colour pale brown with the following parts black :—Breast ; a well-defined border all round including the epipleuron, humerus and scutellum ; and a short sutural stripe commencing from the scutellum.

Head: upper surface behind the eyes impunctate; frontal tubercles small and not well developed; transverse channel behind them well impressed. Antenna slender, extending to the apical area of elytron; second and third segments short, nearly equal to one another; fourth one and a half times as long as third; rest nearly equal to one another except the last two which are somewhat shorter. *Prothorax*: sides gently rounded; upper surface very finely and sparsely punctate; a very shallow depression on each side of the middle, it is so shallow that it can be recognized only under a high magnification, but it is distinct. *Elytra* broader at base than the prothorax; upper surface distinctly and finely punctate, punctures not very sparse. *Underside*: hind tarsus almost as long as hind tibia.

Length, 4·25–4·75 mm.; *breadth*, 2·5–2·75 mm.

Distribution. BENGAL (Macé Coll.), type-locality. DECCAN. MADRAS: Nilgiri Hills (*H. L. Andrewes*). KANARA.

Type in the Paris Museum. Many examples in the British Museum.

I have not seen the following species. As it has been reported from Ceylon a free translation from the original French is given for the sake of completeness.

Phyllectrus ceylanicus Allard.

Phyllectrus ? *ceylanicus* Allard, Comptes-Rendus Soc. Ent. Belg. xxxii, 1889, p. lxxxii.

Body elongate, smooth above. Vertex, scutellum, elytra, breast and antennæ (except three basal segments) black; legs and pronotum reddish-brown; segments of antennæ pitch-black with the bases lighter; scutellum pitch-brown.

Head: interocular transverse channel and the ridge between the antennæ; labrum gently emarginate; maxillary palpus with the third segment thicker than the preceding segments and conical, the fourth segment very short, forming point of the cone. Eyes subhemispherical. Antenna somewhat shorter than the body, pubescent; first segment fairly large, club-shaped; second very short; third three times as long as second; the following segments somewhat shorter, robust, slightly thickened; last longer than the others. *Prothorax* almost as broad as long, narrowed at the base and at the apex; lateral border rounded, and anterior and posterior border parallel; upper surface smooth, and with a broad transverse impression behind the middle without reaching the lateral margins. *Scutellum* triangular with the apex rounded. *Elytra* oblong, elongate, subparallel, sparsely punctate, punctures almost imperceptible; an oval, moderately deep fossa common to both elytra behind the scutellum in the male. *Underside* : epipleuron moderately broad at base, considerably but gradually narrowed and prolonged to a great distance. Prosternum indistinct between the legs, coxal cavity open. Legs moderately long, tibiæ unarmed, first segment of posterior tarsus as long as the following two together ; claws appendiculate.

Length, 5·5 mm.

Distribution. Ceylon. China : Saigon.

Type location unknown to me.

In a variety the scutellum and a narrow band on the humeral callus extending in a diminishing condition to a third of the elytral length red-brown.

The following description is taken from Westwood's original account in Latin, which is accompanied by a coloured drawing of the whole insect and small outline drawings of dissected mouth-parts. The record of locality is "India orientali," which may or may not refer to a place within our faunistic limits. I have therefore recorded this species here.

Luperus nasutus Westwood.

Luperus nasutus Westwood, in Guérin, Mag. Zool. vii, 1837, class ix, pl. 177.

Testaceous, elytra dark tawny mixed with greenish sheen, antennæ and legs whitish ; lower part of the face between the eyes produced in front, forming a nose-like process which is bifid at the tip.

Head together with the eyes somewhat broader than the prothorax, shining, minutely punctate ; below the points of insertion of antennæ produced. Antenna nearly half as long again as the body, compressed, whitish ; first segment black at the base and with black hairs along the inner margin ; second segment small ; third as long as fourth. Eyes black, rather prominent. Mandible with four teeth. Two lobes of maxilla distinct, with hairs at the apex, outer one more slender. Maxillary palpus four-segmented with the apical segment minute and conical. Labial palpus short, three-segmented. *Prothorax* somewhat broader than long, narrowed behind, shining testaceous, two roundish impressions on the upper surface. *Scutellum* rounded, testaceous. *Elytra* much broader than prothorax, one-third longer than broad, rounded posteriorly, subdepressed, very finely punctate, colour shining green with humeral sulcus yellowish-brown. Legs whitish, somewhat short.

Length, nearly 6 mm.

Distribution. East Indies.

Type in the collection of W. W. Saunders.

SECTION IV. E (*concluded*).

Key to the Genera.

1. Body strongly convex at about the middle, sloping down rather steeply behind and more gently in front; completely dark brown with faint but distinct violet sheen; 9 × 6 mm. (monotypic genus) ..	SHAMSHERA gen. n., [p. 452.
No such combination of characters	2.
2. Body oblong, somewhat broadened behind; completely shining yellow-brown, breast black; 7·25 × 4 mm.; in ♂ eighth segment of antenna characteristically modified (monotypic genus) .	MIMAGITOCERA [gen. n., p. 453.
No such combination of characters	3.
3. Body oblong, slightly broadened behind; entirely shining brown to dark reddish-brown; pronotum with depression; 4·5 × 2 mm. (monotypic genus)	DERCETISOMA gen. n., [p. 455.
No such combination of characters	4.
4. Body oblong, moderately convex, somewhat narrowed towards the apex, covered with stiff brownish hairs; pronotum with a shallow depression; completely dark chestnut-brown, fourth to eleventh segments of antenna black; a little over 5 by a little over 3 mm. (monotypic genus)	AVINASA gen. n., [p. 456.
No such combination of characters	5.
5. Body small, oblong, with strongly punctate elytra; shining dark blue, antenna blackish, abdominal sternites and legs pitch-brown much mixed with blue or violet; 5·5–6 × 2·5 mm. (monotypic genus)	MANDARELLA Duviv., [p. 458.
No such combination of characters	6.
6. Body oblong-ovate, small; pronotum finely and closely punctate, elytra very closely and more strongly punctate; general colour brown, head and prothorax red, antennæ, tibiæ and tarsi black, femora light brown, elytra yellowish-white narrowly margined with black, front part yellowish; 2–3 mm. long (one species from our regions).............	NEOLEPTA Jac., p. 459.
No such combination of characters	7.
7. Body oblong, parallel-sided, square-shouldered; pronotal and elytral punctures rugose; male and female coloured differently; ♂ 3·5 × 1·5, ♀ 4·5 × 2 mm. (monotypic genus)..................	HAPLOTIA Jac., p. 460.
No such combination of characters	8.
8. Body small, oblong; pronotal and elytral punctures well impressed, latter tending to form longitudinal rows; general colour brown, underside darker, somewhat lighter above, legs much paler; a little over 3 by slightly less than 2 mm. (monotypic genus)	PRIAPINA Jac., p. 464.
No such combination of characters	9.

9. Body oblong, slightly narrowed at the apex; prothorax constricted towards the base and with the surface impunctate, elytra with fine punctures having a tendency to arrange themselves in longitudinal rows; antennæ extending to the apex of elytron; entirely metallic blue, antenna black with basal segment blue; 5·5 × 2·5 mm. (monotypic genus) ...... AGELOPSIS Jac., p. 466.
No such combination of characters ...... 10.

10. Body oblong, parallel-sided, slightly narrowing at the apex; pronotum impunctate, elytra finely punctate, punctures not very close together; antenna extending a short distance beyond the basal area of elytron, in ♂ fifth and sixth segments are characteristically modified; 5·5 × 2 mm. .... ŒDICERUS Koll. & [Redt., p. 468.
No such combination of characters ...... 11.

11. Body oblong with apex rounded; coloration generally shining metallic blues or greens; antenna hardly extending to the middle of elytron, in ♂ sixth, seventh or eighth segments modified; pronotum finely and sparsely punctate or sometimes impunctate, elytra fairly closely punctate; 4·5–7 × 2–3·5 mm. .... CEROPHYSA Chevr., [p. 470.
No such combination of characters ...... 12.

12. Body oblong, somewhat broad; antenna hardly extending to the apical area of elytron, in ♂ third segment enlarged; pronotum sparsely punctate, elytra moderately closely punctate; moderately shining brown with the apex of elytra blackish; 7 × 4 mm. (one species from our regions) .... TAUMACERA Thunb., [p. 479.
No such combination of characters ...... 13.

13. Body small, oblong with apex rounded; antenna in ♀ extending nearly to the apical area, in ♂ somewhat longer than the body and third to eleventh segments each provided with a branch (some long) from the inner margin; pronotum with the background of surface shagreened, very finely and sparsely punctate, punctures not very distinct; elytra finely shagreened, strongly punctate, punctures moderately large, in places arranged in groups of longitudinal series, somewhat rugose in the middle area, sparsely covered with erect, moderately long and backwardly directed hairs; 5–7·25 × 2·5–3·5 mm. .... XENARTHRA Baly, [p. 481.
No such combination of characters ...... 14.

14. Body oblong, narrowing somewhat towards the apex; antenna extending to apex of elytron in ♂, somewhat shorter in ♀, in ♂ each of third to seventh segments with long hair-fringes hanging down from the underside; pronotum sparsely and finely punctate with one or two coarser punctures; elytra closely and strongly punctate; 2–6·5×1–3 mm. .. Hyphænia Baly, [p. 486.

No such combination of characters ...... 15.

15. Body oblong, sometimes slightly broadened behind; head together with the eyes not broader than the prothorax; prothorax often impunctate, elytra moderately closely punctate, punctures not very distinct, sometimes with hairs; general colour brown; 3–4·5×1·5–2 mm. ...... Phyllobrotica [Redtb., p. 491.

No such combination of characters ...... 16.

16. Body oblong, parallel-sided, narrow, slender; general colour shining brown; antenna slender, extending a short distance beyond the middle of elytron or sometimes to the apical area; pronotal surface impunctate, convex in front; lateral surface of each elytron often deeply concave, sometimes between two longitudinal ribs both arising from behind the humerus; in ♂ sometimes a single abdominal process; 5·5–7×2–3 mm. .... Hoplasomedia gen. n., [p. 493.

No such combination of characters ...... 17.

17. Body oblong, broadened posteriorly; general colour usually shiny brown with black spots and patches on the elytra; antenna long and slender, extending nearly to the apical area of elytron; pronotum sparsely punctate, punctures extremely fine; elytra moderately closely punctate, punctures fine but well impressed; 4–7·75×2·5–4·75 mm. . Paridea Baly, p. 498.

No such combination of characters ...... 18.

18. Body slender, oblong, parallel-sided, narrowed towards the apex; general colour brown, elytra sometimes with metallic coloration, sometimes upper side entirely blue-green or bronzy with faint purplish sheen (when this is the case elytra without rugosity or ribs); antenna not robust, extending nearly to the apical area of elytron; elytra shagreened, coarsely punctate, rugose, punctures arranged in longitudinal rows, with ribs; 3–6·5×1·25–2·5 mm. ...... Cynorta Baly, p. 512.

No such combination of characters ...... 19.

19. Body oblong, moderately narrow, somewhat narrowed at the apex; eyes very large, interocular space very narrow, roots of antennæ close together; antenna longer than the body, some antennal segments with long hairs issuing from all sides; prothorax quadrate, almost impunctate; elytra sparsely and finely punctate, some punctures obsolescent; 5–6×2–2·5 mm. .... Pseudoscelida Jac., [p. 518.

No such combination of characters ...... 20.

20. Body oblong or oblong-ovate; shining metallic green or brown, legs piceous or yellow; antenna extending to three-quarters of the length of the body, in ♂ tenth and eleventh segments modified; pronotum finely punctate, some punctures fine and others stronger; elytra with the postscutellar area depressed, fairly closely and distinctly punctate; 5·5–9·5 × 2·5 mm. .... Sikkimia Duviv., [p. 520.

No such combination of characters ...... 21.

21. Body oblong, moderately elongate, sometimes slightly broadened behind and then narrowed; general colour dull brown with black or metallic patches; head and prothorax shining, elytra subnitid, sometimes altogether shiny; antennæ slender, extending to or beyond the apical area; prothorax much broader than long, surface uneven with depressions, impunctate, sometimes indistinctly punctate; elytra closely and rugosely punctate, sometimes with ribs, in shining species not rugose, very indistinctly and finely punctate; one example from our region with hairs on elytra; 3–9 × 1·25–4·75 mm. .... Mimastra Baly, [p. 524.

No such combination of characters ...... 22.

22. Body oblong, stout, somewhat convex, fairly broad and slightly narrowing towards the apex; general colour shining brown, with black spots and patches, sometimes with very brilliant metallic coloration; head broad enough to be enclosed in the emargination of the pronotum; antennæ stout, generally extending to about one-third the length of elytron, but sometimes almost to the apical area; front margin of prothorax widely emarginate; each elytron with irregular double rows of punctures, punctures sometimes confused; 6–9·5 × 3·5–6 mm. .... Gallerucida Motsch., [p. 545.

No such combination of characters ...... 23.

23. In ♂ the front of the head extraordinarily excavated; body oblong, eyes strongly convex, sometimes so prominent that in some aspects the head seems broader than prothorax; shining or subnitid; antenna generally long, fine, extending to the apical area or a little beyond .... 24.

No such combination of characters ...... 26.

24. Pronotum much broader than long; outer apical angle of elytra as figured (fig. 137 *b*); 7 mm. long .... Macrima Baly, p. 561.

Pronotum more quadrate; outer apical angle more rounded .... 25.

25. Body large, parallel-sided, slightly and gradually narrowing towards the apex; subnitid; pronotum narrowed towards

the base, much wider towards the apex, anterior corners not thickened, small, acute; each elytron with four indistinct lines; 8·25–11·25 × 4–5 mm. . . . . ACROXENA Baly, p. 564.

Body somewhat smaller, moderately long, gradually narrowed and rounded towards the apex; shining, subnitid or dull; pronotum narrowed towards the base but not much widened towards the apex, anterior corners thickened or swollen, surface never closely or coarsely punctate; elytra never with distinct lines; 5–8·75 × 2–4·25 mm. * . . . . PALPOXENA Baly, [p. 568.

26. Body oblong, broad; antenna extending to the middle of elytron, second and third segments very short, from fourth to eleventh dorso-ventrally flattened; elytra hardly broader at base than the prothorax, sparsely and finely punctate; 7 × 4·5 mm. (one species from our regions) . . . . PARASTETHA Baly, [p. 599.

No such combination of characters . . . . . . 27.

27. Body robust, broad, moderately shining; head together with the eyes much narrower than the prothorax; antenna extending to the apical area of elytron, fourth to tenth segments laterally flattened; pronotum with upper surface not convex, sparsely but distinctly punctate; elytra broader than the prothorax, finely punctate, punctures tending to form longitudinal rows, a short row of strongly-impressed punctures on the inner side of humerus; 9·5–12 × 5·5–7 mm. . . . . HYLASPES Baly, [p. 601.

No such combination of characters. . . . . . 28.

28. Body broadened behind; antenna in ♂ extending nearly to two-thirds, in ♀ to half the length of the body, fourth to tenth segments triangularly dilated; pronotum quadrate, smooth, convex; each elytron with three single rows (counting from the suture) moderately close together, after these double rows remotely placed; brilliant metallic coloration with golden reflections; 9 × 4·5 mm. (monotypic genus) . . . . HYLASPOIDES Duviv., [p. 604.

No such combination of characters . . . . . 29.

29. Body large, broad, parallel; frontal tubercles widely separated from each other, root of antenna very close to eye-margin, a channel along front margin of eye for the reception of the basal portion of antenna, antennæ very fine and slender; elytra moderately closely punctate; basal area on each side of scutellum convex; 9·5–10 × 5·5–6 mm. . . . . DORYIDA Baly, p. 605.

No such combination of characters . . . . . . 30.

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* A study of the comparative anatomy of the heads of certain males of this genus is given on p. 592 *et seq.*

30. Body oblong, nearly as broad at base as at the apex ; antenna stouter towards the apex, a channel along the front margin of eye for the reception of the basal segment of antenna ; elytra moderately closely and distinctly punctate, on each side of scutellum basal area not convex ; 7·5 × 4·75 mm. (one species from our regions) .... STETHIDEA Baly, [p. 607.
No such combination of characters ...... 31.
31. Body broad, moderately large, ovate, widened behind the middle ; general colour brown with metallic colours but not brilliant ; pronotum very uneven, generally punctate, reflexed margin strongly wrinkled ; 9–11·5 × 6–7 mm. .. LEPTARTHRA Baly, [p. 609.
32. Body large, with massive appearance ; generally elytra shining blue or blue-green or green and other parts differently coloured ; pronotum smooth, punctate, reflexed margin not strongly wrinkled ; 5·5–18 × 3–9 mm., usually 9–12 mm. long .... APLOSONYX Dup. & [Chev., p. 612.

Genus **SHAMSHERA** gen. nov.

GENOTYPE, *Galleruca bennetti* Hope.

This is a monotypic genus.

Body large, seen sideways strongly convex at about the middle, sloping down rather steeply behind and more gently in front. The form of body is unlike that of the genotype of *Dercetis* in which it has been placed.

Head with the convex vertex indistinctly punctate and with fine longitudinal striæ ; frontal tubercles not strongly raised nor well defined ; surface behind them deeply depressed ; clypeus broadly raised and continued between the antennæ, with the surface punctate ; labrum about three times as broad as long, sides rounded, front margin emarginate in the middle, with a few long hairs ; mandibles large ; maxillary palpus with the apical segment conical and the penultimate about equal in length, thicker towards the apex. Eyes strongly convex. Antenna hardly extending to the middle of elytron : first segment long and club-shaped ; second segment nearly half the length of third ; in the female third nearly equal to fourth, in the male somewhat shorter ; from the fifth the segments are nearly equal to one another, the last sharply pointed at the apex. *Prothorax* broader than long ; front margin widely emarginate ; sides drawn forwards, straight, oblique, margined, slightly reflexed ; basal margin widely rounded ; anterior lateral angles thickened, produced, with the seta-bearing pore in the middle ; posterior lateral angles obtuse, also containing the seta-bearing pore in the middle ; upper surface gently convex from side to side, sparsely covered with a few well-impressed punctures, on each side of the middle a shallow depression. *Scutellum* somewhat long, sharply triangular, surface slightly convex in the middle, smooth, impunctate. *Elytra* broader at base than the prothorax; humerus not strongly raised, finely punctate; upper surface closely covered with large and deep punctures which show a tendency to arrange themselves in longitudinal rows; each elytron with four longitudinal lines which are more evident when the insect is examined in certain aspects; along each lateral margin one or two longitudinal costæ; on the apical and lateral areas the interstices tend to be rugulose. *Underside*: epipleuron gradually narrowed behind the middle and continued very narrowly to the apex; legs fairly stout, hind tibia longer than either the front or middle tibia, hind tarsus similar to the other tarsi; claws appendiculate.

Distribution. NEPAL. MANIPUR.

275. **Shamshera bennetti** (Hope).

Galleruca bennetti Hope, in Gray, Zool. Miscell. 1831, p. 29.
Antipha bennetti Hope, Baly, Ann. Mag. Nat. Hist. (5) iv, 1879, p. 120.

Completely dark brown; eyes black; elytra with a faint but distinct violet sheen.

Length, 9 mm.; *breadth*, 6 mm.

Distribution. NEPAL (Hardwicke Coll.). MANIPUR (*Doherty*).

Type in the British Museum.

Genus **MIMAGITOCERA** gen. nov.

GENOTYPE, *Agetocera flava* Jacoby.

This is a monotypic genus.

This genus is erected for the reception of the above species because it has appendiculate claws, and cannot therefore be included in *Agetocera*, the species of which have bifid claws. The male antenna of *Mimagitocera flava* shows a modification similar to that found in the species of *Agetocera*, but such modification is a general phenomenon in the GALERUCINÆ.

Body oblong but more slenderly built than those of the species of *Agetocera*, somewhat broadened behind.

Head together with the eyes not broader than the prothorax; vertex and the upper side generally flat; median longitudinal line absent on the vertex; frontal tubercles broad, somewhat convex, smooth, impunctate, delimited behind by a transversely impressed line; clypeus generally raised, more sharply longitudinally along the middle and continued between the antennæ; labrum large, almost fully covering the mandibles, with the front margin and sides forming one continuous uniform curve, surface with a few long hairs; maxillary palpus long, with the apical, conical segment comparatively large and the penultimate considerably thickened at the apex. Eyes strongly convex. Antenna extending slightly beyond the middle; first segment stout, club-shaped but not very long; second small, rounded; third more than twice as long as the second and longer than fourth; fourth very slightly longer than fifth and almost equal to sixth; seventh about equal to fifth in length though stouter at the apex; eighth largest and stoutest, elongate-ovate, with a round, presumably sensory, spot on the outer surface near the apex; ninth, tenth and eleventh slender and cylindrical, the ninth being the shortest of the three and the eleventh somewhat longer than the tenth, with its pointed apex well defined, resembling a separate segment. *Prothorax* almost quadrate, constricted near the base, broadened before the middle; front and hind margins almost straight; sides margined, narrowly explanate and reflexed; anterior lateral angles produced and posterior obtuse, each corner bearing a long seta; upper surface smooth, impunctate, with a median, transverse depression which is deeper at the sides. *Scutellum* somewhat long, triangular, with the apex rounded, smooth and impunctate. *Elytra* much broader at base than the prothorax; humerus strongly raised with the summit impunctate; a certain large postscutellar area on each side of the suture gently convex; covered with fine punctures which are not so close together as in the species of *Agetocera*, each puncture with a dark centre. *Underside* covered with fine hairs; legs slender, tibia without an apical spine, first segment of hind tarsus somewhat longer than the corresponding segment of the other tarsi; claws appendiculate.

Distribution. INDIA.

276. **Mimagitocera flava** (Jacoby).

Agetocera flava Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 394.

Colour entirely shining yellow-brown except the breast and eyes which are black.

Secondary sexual characters. In ♂ (1) the eighth segment of antenna characteristically modified, (2) the last visible abdominal segment deeply concave and trilobed.

Length, 7·25 mm.; *breadth*, 4 mm.

Distribution. ASSAM: Khasi Hills.

Type in the British Museum.

Although there is only one male example in the collection, from analogy it would not be incorrect to assume that the characters mentioned above are secondary sexual characters.

Genus **DERCETISOMA** gen. nov.

GENOTYPE, *Dercetis concolor* Jacoby.

This is a monotypic genus.

Body oblong, slightly broadened behind.

Head together with the eyes not broader than the pronotum ; upper surface behind the eyes smooth, sparsely and finely punctate ; frontal tubercles raised but not distinctly delimited ; surface behind them deeply depressed ; clypeus with the raised portion rounded and continued between the antennæ ; labrum much broader than long, sides rounded, front margin with an emargination in the middle and a few long hairs ; maxillary palpus with the apical segment long and sharply conical and the penultimate not thicker than and about as long as the apical. Eyes strongly convex. Antenna extending nearly to the middle of elytron ; second segment small, much shorter than third ; fourth much longer than third ; fifth somewhat shorter than fourth ; fifth, sixth and seventh equal ; eighth slightly shorter than seventh ; eighth, ninth and tenth nearly equal to one another ; eleventh slightly longer, with the apex pointed. *Prothorax* broader than long ; sides straight but somewhat oblique, with sharp margins ; anterior angles enlarged ; upper surface sparsely covered with fine but distinct punctures, on each side of the middle a shallow but perceptible depression, in which the punctures are larger. *Scutellum* triangular with the apex rounded and the surface impunctate. *Elytra* with the humerus prominent ; a certain basal area convex ; surface fairly closely covered with well-impressed punctures, which are stronger than those of the pronotum. *Underside* : epipleuron narrowed behind the middle and continued to the apex ; legs slender, hind femur thicker than either the front or middle femur, hind tibia longer than either of the other tibiæ, first segment of hind tarsus equal to following segments together ; claws appendiculate.

Distribution. BURMA. SUMATRA. JAVA. MALACCA.

277. **Dercetisoma concolor** (Jacoby).

Antipha concolor Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 222.
Antipha brunnea Allard, Comptes-Rendus Soc. Ent. Belg. xxxiii, 1889, p. cviii.

Entirely brown to dark or reddish-brown ; shining ; five or six apical segments of antenna blackish, in some cases nearly all segments blackish.

Length, 4·5 mm. ; *breadth*, 2 mm.

Distribution. BURMA : Bhamo, vi.–vii. 1886 (*Fea*). SUMATRA. JAVA. MALACCA.

Type of *concolor* in the Genoa Museum. Two of Fea's examples are in the British Museum.

Type of *brunnea* in the Brussels Museum.

This is a puzzling species which shows no particularly distinguishing feature yet exhibits variability with intermediate grades. Owing to the depression on the pronotum it must be separated from *Dercetis*.

Genus **AVINASA** gen. nov.

GENOTYPE, *Antipha hirsuta* Jacoby.

This is a monotypic genus.

Body oblong, moderately convex, somewhat narrowed towards the apex ; covered with stiff brownish hairs, more numerous on the upper than on the underside. Pronotum with a shallow depression on each side of the middle.

Head somewhat narrowed in front ; upper side behind the eyes indistinctly punctate ; frontal tubercles obsolescent ; interocular space with a deep depression in the middle ; clypeus with the raised portion rounded, continued between the antennæ ; labrum small, broader than long, sides rounded, front margin with a small emargination in the middle, with a few long hairs ; mandibles moderately large ; maxillary palpus slender with the apical segment long and conical, the penultimate almost equal in length and not stouter. Eyes large, strongly convex. Antenna short, extending a little beyond humerus ; first segment long, club-shaped ; second very short, rounded towards the apex ; third longer than second, constricted in the middle and slightly thickened towards the apex ; from the fourth the segments are much thicker ; fourth much longer than third ; fifth shorter than fourth ; fifth and sixth equal ; seventh slightly shorter than sixth ; seventh and eighth equal ; ninth slightly shorter than eighth and appears somewhat thinner ; ninth, tenth and eleventh nearly equal to one another, last bluntly pointed ; hairs on antennæ thick and bristly. *Prothorax* broader than long ; front and hind margins slightly arched ; sides straight, oblique ; anterior lateral angles thickened, with the seta-bearing pore large, posterior lateral angles almost right angles, seta-bearing pore not so large as those of the anterior angles ; borders all round margined, lateral slightly more marked ; upper surface closely covered with fairly large and shallow punctures, and with long hairs ; each lateral margin with a series of long hairs, those arising from the pores much longer. *Scutellum* triangular with the apical angle sharp and upper surface slightly convex, smooth and impunctate. *Elytra* somewhat broader at base than the prothorax ; humerus prominent, and a small area at base slightly convex ; closely and confusedly covered with shallow and round punctures, these latter with darker centres, all punctures not of equal size; hairs backwardly directed. *Underside* covered with fine hairs, those on the legs more bristly; epipleuron gradually narrowing and becoming slanting towards the apex, surface covered with long hairs; legs moderately long, hind legs longer than either the front or middle, femora slightly thickened; hind tibia longer than the others; first segment of posterior tarsus long, much longer than the corresponding segment of the front or the middle tarsus; claws appendiculate.

Distribution. INDIA. BURMA.

278. **Avinasa hirsuta** (Jacoby).

Antipha hirsuta Jac., Entomologist, xxiv, Suppl. 1891, p. 32.
Dercetis hirsuta Jac., Weise, in Junk & Schenkling, Coleop. Cat. part 78, 1924, p. 144.

Completely dark chestnut-brown; moderately shining; fourth to eleventh segments of antenna black, third slightly touched with black.

Length, a little over 5 mm.; *breadth*, a little over 3 mm.

Distribution. ASSAM.

Type in the British Museum.

279. **Avinasa pubescens** (Jacoby).

Anthipha pubescens Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 971.

Elytra pubescent. General colour brown; antennæ (except the two basal segments which are brown), epipleura partly, apical portions of posterior femora, tibiæ and tarsi black; part of epipleuron piceous.

Head with the vertex only punctate; frontal elevations transverse, interrupted by a deep fovea. Antenna not extending to the middle of elytron; third and fourth segments equal; segments between the fourth and some of the apical ones slightly widened. *Prothorax* twice as broad as long; sides perfectly straight; anterior angles oblique, each with a single hair; upper surface rather strongly and closely punctate, especially at the sides. *Scutellum* rather large. *Elytra* without any basal depression; closely impressed with rows of larger and smaller punctures, the apical areas very finely punctate.

Length, about 4 mm.

Distribution. BURMA: Karen Mts. (*Fea*).

Type in the Genoa Museum.

Jacoby described this species from a single specimen.

This species resembles *A. hirsuta* Jac. from Assam, but differs in being less convex and wider in the middle and in having differently coloured epipleura and legs. It is possible to regard this species as a variety of *hirsuta*.

I have not seen the type of this species. The above description is taken from Jacoby.

Genus **MANDARELLA** Duvivier.

Mandarella Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 433.

GENOTYPE, *Mandarella nagpurensis* Duviv.

This is a monotypic genus.

Body small, oblong, with strongly punctate elytra.

Head with the vertex convex; upper surface with a few small punctures, separated from the frontal tubercles by a strongly impressed transverse line; frontal tubercles small, not strongly raised, with a very deeply impressed longitudinal line between them; clypeus large, raised; labrum somewhat convex, broader than long; these parts sparsely covered with longish and fine hairs; maxillary palpus with the last segment conically pointed and the penultimate thicker. Eyes not strongly convex. Antenna long, slender, covered with bristly hairs, in the female slightly shorter than the body, in the male slightly longer; first segment club-shaped, thickened; second very small; third twice as long as the second; fourth longer than third; in the female antenna fourth to eighth or ninth nearly equal to one another; ninth or tenth somewhat shorter than the previous segment; tenth and eleventh equal, the latter pointed at the apex; in the male antenna fourth to eleventh nearly equal to one another. *Prothorax* slightly broader than long, somewhat narrower towards the base; anterior and posterior margins almost straight; sides very slightly sinuate; edges of the lateral and posterior margins sharp; at each corner the seta-bearing pore prominent, those at the posterior lateral corners sharper than those in front; upper surface convex, on each lateral area an obsolescent shallow depression, covered with punctures more closely on the lateral than on the central area, where there are some impunctate spaces; the punctation of the pronotum varies, in some cases the punctures are finer and sparser, but in all cases they are neither so large, crowded nor so strongly impressed as those of the elytra. *Scutellum* small, sharply triangular, with the surface slightly convex, smooth and impunctate *Elytra* much broader at base than the prothorax; shoulders strongly convex and impunctate; lateral margins slightly reflexed, with the edges sharp; a longitudinal lateral area from shoulders to apex almost vertical and somewhat concave in the middle; confusedly and fairly closely covered with large, round and strongly impressed punctures. *Underside* sparsely covered with fine hairs;

epipleuron broader at base, concave, continued very narrowly to the apex. Legs slender; femora somewhat thickened; tibiæ long, thinner than femora, each with a sharp apical spine; tarsi thin, the first segment of posterior tarsus slightly longer than the corresponding segment of the front or middle tarsus; claws appendiculate.

Distribution. India. Burma.

280. **Mandarella nagpurensis** Duvivier.

Mandarella nagpurensis Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 434.

General colour shining dark blue; antennæ blackish, with the two basal segments more shining and less hairy; abdominal sternites and legs pitch-brown much mixed with blue or violet. The general colour is sometimes mixed with violet, and sometimes with green.

Secondary sexual character. In ♂ the antenna is slightly longer than the body; the last visible sternite of the abdomen exhibits a depression.

Length, 5·5–6 mm.; *breadth*, 2·5 mm.

Distribution. Chota Nagpur: Mandar (*Père Cardon*).

Duvivier records it also from Kurseong (*P. Braet*). In the collection of the British Museum there are many specimens collected by Doherty in Manipur and the Ruby Mines, Burma.

Type location unknown to me. In the British Museum there is an example from Duvivier's collection which answers to the description of *Mandarella*.

Genus **NEOLEPTA** Jacoby.

Neolepta Jac., Notes Leyd. Mus. vi, 1884, p. 222.

Genotype, *Neolepta biplagiata* Jac. (Sumatra).

Jacoby, when erecting the genus, described two species, of which the above is designated as the genotype.

Body oblong-ovate.

Head: upper surface convex; frontal tubercles well developed with a deep transverse channel behind them; clypeus rather flattened in front; labrum quadrate; maxillary palpus with the penultimate segment swollen and the apical conical and nearly equal to the previous one. Eyes moderately convex. Antenna rather robust, extending to the middle of elytron; first segment long and club-shaped; second and third short, nearly equal to one another; fourth, fifth and sixth somewhat thickened, the rest thinner; the hair-clothing bristly. *Prothorax* broader than long, front margin nearly straight, hind margin widely arched; each lateral margin with sharp edge, slightly explanate; upper surface convex from side to side, a depression on each side of the middle. *Scutellum* triangular with the apex acute. *Elytra* hardly broader at base than the prothorax; upper surface finely and confusedly punctate; lateral margins slightly explanate. *Underside* sparsely covered with fine hairs; epipleuron abruptly narrowed before the middle, continued to the apex. Legs moderately long and slender; hind legs longer than either the middle or front legs; first segment of hind tibia with a long apical spine; hind tarsus very long; claws appendiculate.

Distribution. BURMA. SUMATRA. NEW GUINEA.

The above description is taken from an example of *N. biplagiata* Jac. in the collection of the British Museum, which has a label of identification in Jacoby's handwriting.

281. **Neolepta ruficollis** Jacoby.

Neolepta ruficollis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 992.

General colour brown; head and prothorax red, front part of head yellowish; antennæ, tibiæ and tarsi black; femora light brown; elytra yellowish-white narrowly margined with black.

Head: upper surface impunctate; interocular space with a transverse channel; frontal tubercles well developed, very close together. Antenna with the second and third segments very small; the following segments rather compressed, nearly equal. *Prothorax* about one-half broader than long, slightly narrowed in front, lateral and posterior margins rounded; upper surface with a feeble transverse depression at the sides, finely and closely punctate. *Elytra* rather convex, very closely and more strongly punctate than the pronotum. *Underside*: first segment of posterior tarsus half the length of the tibia.

Length, 2–3 mm.

Distribution. BURMA: Karen Mts. (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

Genus **HAPLOTIA** Jacoby.

Haplotia Jac., Proc. Zool. Soc. Lond. 1887, p. 117.

GENOTYPE, *Haplotia varipennis* Jac.

This is a monotypic genus.

Body oblong, parallel-sided, square-shouldered. The coloration is so different in the sexes that it is possible to mistake them for two species if they are not taken together.

Head large, together with the eyes as broad as the prothorax; upper surface rugosely punctate on shagreened background;

frontal tubercles well developed with the surface more finely shagreened but not punctate, a deep longitudinal cleft between them and the surface behind depressed; clypeus raised, continued as a ridge between the antennæ; labrum broader than long, sides rounded, front margin slightly emarginate; clypeus and labrum with a few long, fine hairs; maxillary palpus with the apical segment fairly long, conical, and the penultimate considerably thickened. Compared with the size of the head eyes not very strongly convex. Antenna moderately slender, extending nearly to the apical area of elytron; covered with short hairs; first segment long and club-shaped; second always short; third a little more than twice as long as second; fourth equal to third; fifth very slightly shorter than fourth; from the fifth to the eleventh the segments are nearly equal to one another, the last three segments may in some aspects appear somewhat shorter; eleventh pointed towards the apex and narrowed towards the base. In the male of the type-example the left antenna exhibits at the end of the fourth segment a small round structure from the middle of which arises the fifth segment. In the right antenna this extra structure is absent; it is evidently an example of a teratological phenomenon. *Prothorax* quadrate, somewhat narrowed behind; sides sinuous, sharply margined; basal margin widely rounded; upper surface with large round punctures on a roughly shagreened background, each puncture having at the centre a fine white hair visible only under a high magnification and in a suitable light, central area generally depressed and with a shallow depression on each side of the middle and sometimes one in front; seta at each corner much longer than other hairs. *Scutellum* triangular, surface roughly punctate, each puncture having a hair, base transversely striated, background finely shagreened. *Elytra* broader at base than the prothorax; humerus strongly raised, a depression on its inner side deeper in the female than in the male; postscutellar area on each side of suture convex; upper surface coarsely punctate on a roughly shagreened background, punctures more rugose in the male than in the female; each puncture having a whitish hair at the centre. *Underside* sparsely covered with fine hairs; epipleuron somewhat narrowed behind the middle and continued to the apex; legs long, slender, femora projecting much beyond the sides of the body, hind femur thicker than either the middle or the front femur; tibia without a spine at the apex; first segment of the posterior tarsus longer than the following segments together, bilobed segment of tarsus slender, claw segment projecting much beyond the bilobed segment; claws appendiculate.

Distribution. CEYLON.

282. **Haplotia varipennis** Jacoby.

Haplotia varipennis Jac., Proc. Zool. Soc. Lond. 1887, p. 118, pl. xi, figs. 5 & 6.

The apex of the body is rounded, and not pointed in the female as shown in Jacoby's published coloured drawing, which was evidently taken from a freshly emerged example killed when still soft. All examples (5 ♂♂, 7 ♀♀) which were before Jacoby when he drew up the description are in the collection of the British Museum.

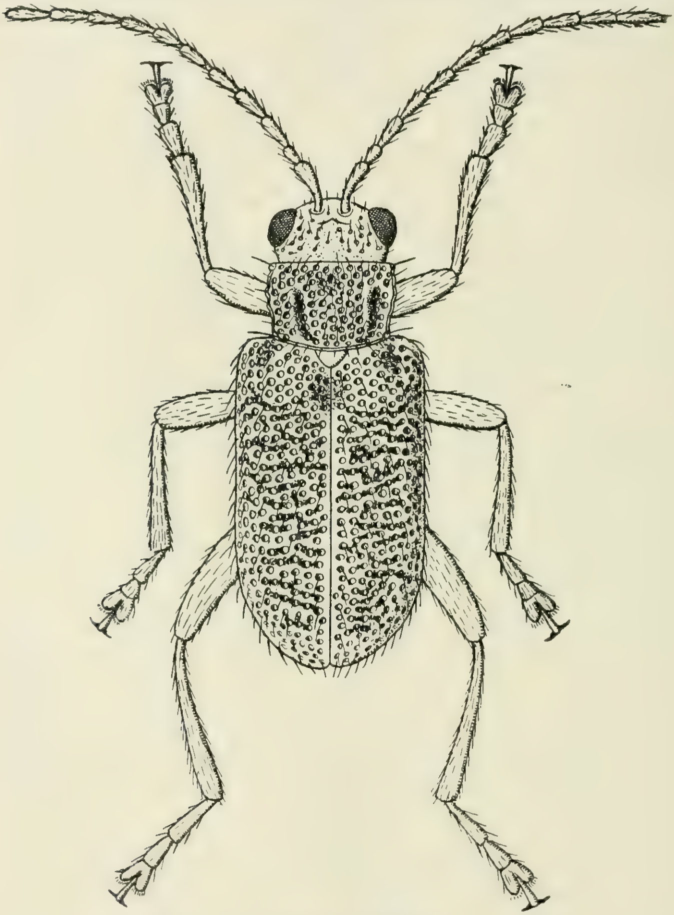

Fig. 115.—*Haplotia varipennis* Jac., ♂.

The coloration of the sexes is as follows :—In the female antennæ and legs dark brown, elytra yellow with a metallic greenish sheen except for a triangular basal patch surrounding the scutellum and a border all round including the extreme apical area, which are purple with a greenish sheen; upper

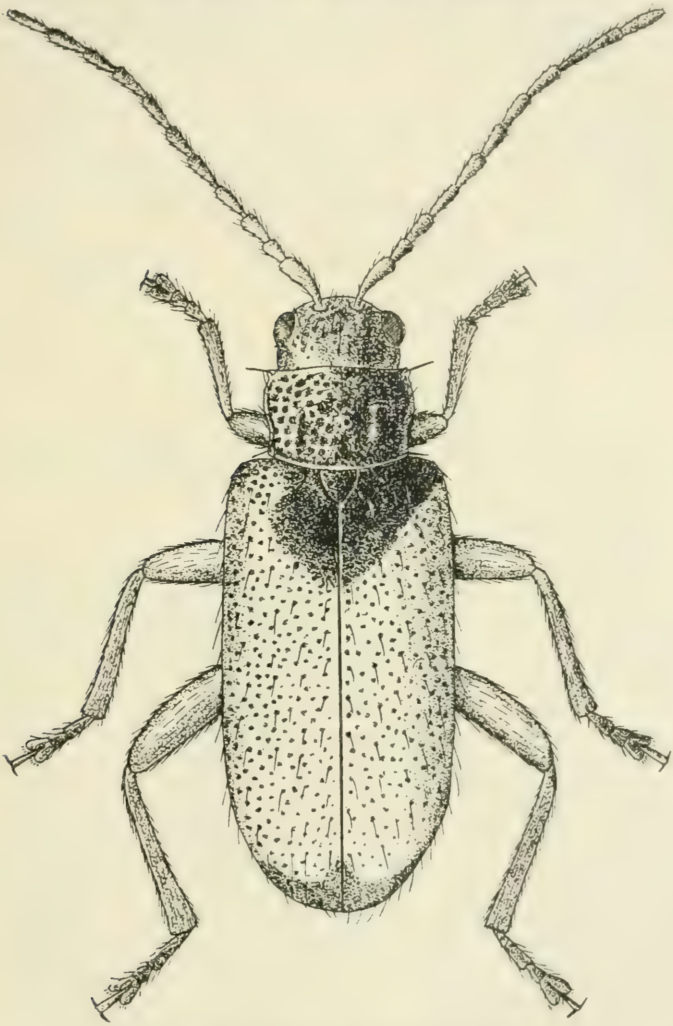

Fig. 116.—*Haplotia varipennis* Jac., ♀.

side of head, including clypeus, and pronotum green with a purplish sheen; lateral edges of prothorax and a certain area surrounding the base of each antenna dark brown; mouth-parts pitch-brown; underside light brown. In the male upper side green with deep purple sheen ; underside similarly coloured except the legs, including the coxæ, which are pitch-brown ; some lighter brown near the points of articulation of the legs and the abdomen ; mouth-parts and the three basal segments of antenna pitch-brown, remaining segments black. The legs are much darker brown in the male than in the female.

Secondary sexual characters. (1) ♀ somewhat larger and (2) coloration different.

Length of ♀, 4·5 mm. ; *breadth,* 2 mm. ; *length* of antenna, 3·25 mm.

Length of ♂, 3·5 mm. ; *breadth,* 1·5 mm. ; *length* of antenna, 3 mm.

Distribution. CEYLON : Nuwara Eliya, 6,234–8,000 ft., 8–11. ii. 1882 (*G. Lewis*).

Type in the British Museum.

Genus **PRIAPINA** Jacoby.

Priapina Jac., Proc. Zool. Soc. Lond. 1887, p. 116.

GENOTYPE, *Priapina longicornis* Jac.=*Trichocerastes*? *cintulus* Motsch.

This is a monotypic genus.

Body small, oblong, apex rounded.

Head together with the eyes almost as broad as the prothorax ; upper surface behind the interocular impression smooth, with a few fine punctures ; frontal tubercles small, well developed, with a median longitudinal impression, transverse channel behind them deeply impressed. Eyes strongly convex. Antenna fine, extending nearly to the apical area of elytron in the female, longer in the male ; first segment very long and club-shaped ; second short ; in the female third nearly equal to second, in the male very minute ; fourth three times as long as second ; fourth to eighth nearly equal to one another ; ninth slightly shorter than eighth ; tenth slightly shorter than ninth ; tenth and eleventh nearly equal, latter pointed ; in the female antenna three or four apical segments have become slightly shorter. *Prothorax* nearly quadrate, slightly broader than long ; sides straight, somewhat oblique, finely margined ; basal margin widely rounded ; anterior lateral angles rounded, posterior acute, each having a long seta arising from a pore ; upper surface uniformly convex from side to side, closely punctate, punctures well impressed, a shallow depression across the middle. *Scutellum* sharply triangular, surface smooth and impunctate. *Elytra* broader at base than the prothorax ; closely punctate, punctures well impressed, tending to form longitudinal rows.

Underside sparsely covered with fine hairs; epipleuron continued very narrowly nearly to the apex; legs slender, posterior tarsus (like that of the species of *Monolepta*) long and about three-quarters of the length of posterior tibia; claws appendiculate.

Distribution. CEYLON.

283. **Priapina cintula** (Motschulsky).

Trichocerastes ? cintulus Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 415.
Priapina longicornis Jac., Proc. Zool. Soc. Lond. 1887, p. 116.

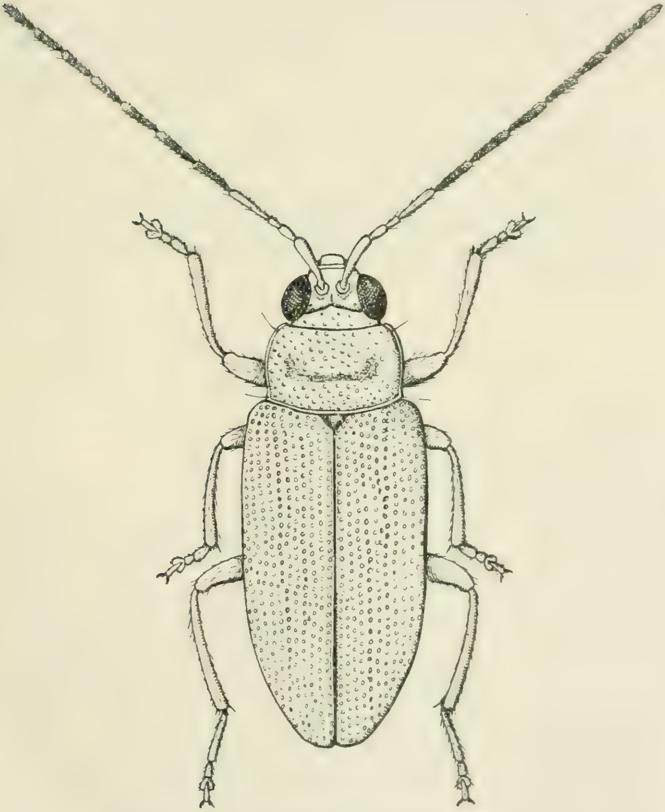

Fig. 117.—*Priapina cintula* (Motsch.), ♀.

General colour brown; underside darker, upper side somewhat lighter, legs much paler; four basal segments of antenna brown, the rest blackish; eyes black; margins of elytra all round and suture faintly piceous; scutellum piceous. The darker parts may be red-brown, piceous or blackish.

Length, slightly over 3 mm.; *breadth*, slightly less than 2 mm.

Distribution. CEYLON: Dikoya, 3,800–4,200 ft., 21. i.–7. ii. 1882 (*G. Lewis*).

In the 'Coleopterorum Catalogus' (Junk and Schenkling, Berlin, 1929, p. 152) Weise has sunk Jacoby's species as a synonym of Motschulsky's *cintulus*. He may have done so for some good reason, although I cannot find this stated anywhere. I give below a translation of the original Latin of Motschulsky's description:—

"In form and colour resembles *Teinodactyla nigrocilla* but sides somewhat parallel and thorax with a median transverse impression. Elongate-ovate, convex, shining, red-brown, underside and antennæ fuscous; elytra paler, rugose-punctate; margins and suture narrowly, and the eyes black.

"*Length*, about 2 mm.; *breadth*, about 1 mm.

"CEYLON: mountains of Nuwara Eliya."

Though insufficient, the above description does not contain anything which cannot be applied to Jacoby's species. I, therefore, do not wish to alter Weise's arrangement, although I am not satisfied with it.

Genus **AGELOPSIS** Jacoby.

Agelopsis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 301.

GENOTYPE, *Agelopsis cœruleus* Jac.

This is a monotypic genus.

Body oblong, slightly narrowed at the apex.

Head together with the eyes as broad as the prothorax; upper surface and vertex impunctate; frontal tubercles well developed with a fine median longitudinal impressed line, delimited behind by a deeply impressed channel; clypeus moderately sharply raised and continued between the antennæ; labrum large, broader than long, sides rounded, front margin with a slight emargination in the middle and with a few long hairs; maxillary palpus robust, apical segment short, conical, penultimate much stouter, though not longer. Eyes moderately convex. Antenna extending to the apex of elytron; covered with hairs; first segment very stout, smooth; second short; third one half as short as fourth; fourth and the following segments very elongate. *Prothorax* about as long as broad, although in some aspects looks longer than broad, constricted towards the base; sides sinuate, being somewhat convex before the middle, finely margined; basal margin almost straight with a shallow emargination in the middle; all four corners right angles, each with a seta-bearing pore; upper surface smooth, impunctate, finely granulate or with very fine oblique striations; behind the middle and on each side of the median longitudinal line a deep and broad depression. *Scutellum* broad, triangular, with the apex rounded and surface impunctate *Elytra* much broader at the base than the prothorax; humerus almost impunctate, at most with a few fine punctures; upper surface punctate, punctures fine, having a tendency to form longitudinal rows. *Underside*: abdominal sternites comparatively sparsely hairy, apices of tibiæ and tarsi thickly covered with brownish pubescence; epipleuron gradually narrowed before the middle and continued narrowly to the apex; legs long and slender; claws appendiculate and divaricate.

Distribution. INDIA.

284. **Agelopsis cœruleus** Jacoby.

Agelopsis cœruleus Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 301.

Entirely metallic blue; antennæ black except the basal segment, which shares the general colour of the body; mouthparts black with the apices of some parts deep brown; scutellum black.

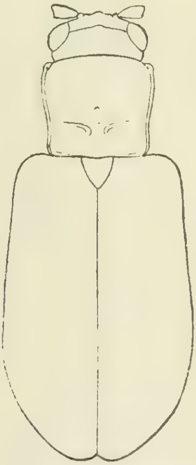

Fig. 118.—*Agelopsis cœruleus* Jacoby.

Length, 5·5 mm.; *breadth*, 2·5 mm.

Distribution. BENGAL: Konbir (*Père Cardon*).

Type in the British Museum.

Genus **ŒDICERUS** Kollar & Redtenbacher.

Œdicerus Koll. & Redt., in Hügel, Kaschmir und das Reich der Siek, iv, 1848, p. 556; Chapuis, Gen. Col. xi, 1875, pp. 181 & 182.

Genotype, *Œdicerus cyanipennis* Koll. & Redt.

The genus includes two species.

Body oblong, parallel-sided, slightly narrowing at the apex. *Head* with upper surface and vertex smooth and impunctate; frontal tubercles obsolescent, a short median longitudinal impressed line between them but without a transverse impression behind; clypeus raised along the middle line, the raised portion continued between the antennæ and excavated on each side of it, covered with long hairs; labrum much broader than long, sides and front margin forming one continuous curve, with a few long hairs; maxillary palpus much thickened, apical segment small and conical, penultimate much stouter. Eyes strongly convex. Antenna extending a short distance beyond the basal area of elytron; first segment stout, not very long, thin at the base and gradually thickening towards the apex; second small, globular; third somewhat larger and stouter than second; fourth not longer than second, much widened, forming a cup-shaped base to fifth; fifth and sixth characteristically modified, they are enormously enlarged and so associated that they must be considered together, rounded on the underside and deeply excavated above, the excavation of the fifth is overhung by the prolongation of the corner of the inner side, the base of sixth fits closely to the apex of fifth so that the excavations of the two segments tend to form a whole, the articulation between the two segments is nearer the underside, the excavated surface is smooth and without hairs (I do not think it necessary here to give a more detailed description of these structures); seventh and eighth cylindrical and equal to each other in length; other segments missing in the examples before me; the undersides of the modified segments and the two following are covered with longer and stiffer hairs. *Prothorax* slightly broader than long, although appearing quadrate in some aspects; sides almost parallel, finely margined; basal border almost straight, margined, slightly sinuate in the middle; anterior lateral corners right angles, posterior obtuse, each having a small seta-bearing pore; upper surface smooth, impunctate; in one example the depression across the middle is continuous without reaching the lateral margins, in the other example there are two round depressions on each side of the middle. *Scutellum* triangular with the apex rounded, surface smooth and impunctate. *Elytra* much broader at the base than the prothorax; square-shouldered; the background of upper surface is finely and transversely striated, finely punctate, the punctures not very close together. *Underside* moderately thickly covered with longish hairs; epipleuron broader in the basal portion, immediately after narrowed and continued very narrowly nearly to the apex; legs long, slender, hind tibia somewhat longer than the others; claws appendiculate.

Distribution. INDIA. MALAY PENINSULA.

285. **Œdicerus cyanipennis** Kollar & Redtenbacher.

Œdicerus cyanipennis Koll. & Redt., in Hügel, Kaschmir und das Reich der Siek, iv, 1848, p. 557.

General colour bright brown; seventh and eighth segments of antenna piceous; some portions of the area between the eyes and labrum blackish; sides of breast and abdominal segments blackish; elytra very dark brown with a bluish-violet sheen; scutellum brown or piceous.

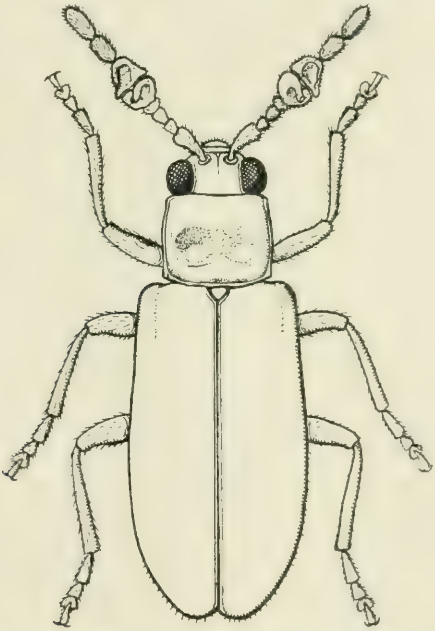

Fig. 119.—*Œdicerus cyanipennis* Koll. & Redt. Apical segments of antennæ are not shown.

Secondary sexual characters. In ♂ (1) fifth and sixth segments of antenna are modified, (2) the last visible abdominal sternite is characteristically modified.

Length, 5·5 mm.; *breadth*, 2 mm.

Distribution. KASHMIR.

Type location unknown to me. Two named examples in the British Museum.

Genus **CEROPHYSA** Chevrolat.

Cerophysa Chevrolat, in d'Orbigny, Dict. Univ. Hist. Nat. (original edition) iii, 1843 *, p. 339; Chapuis, Gen. Col. xi, 1875, p. 181.
Ozomena Chevrolat, l. c. iv, 1845, p. 5.

GENOTYPE, *Galeruca nodicornis* Wiedemann (1823) (Java). Fixed by Chevrolat.

Body oblong with the apex rounded. Coloration generally shining metallic blues or greens.

Head together with the eyes as broad as the prothorax; frontal tubercles obsolescent, although a median longitudinal impression is present, transverse impression behind them also obsolescent; upper surface smooth and impunctate; clypeus raised along the middle with the surface on each side excavated and sloping in front of the transversely raised portion, surface with long hairs; labrum large, broader than long, sides rounded, front margin straight except for a slight emargination in the middle, with some long hairs; maxillary palpus with the apical segment very small and conical, placed on a very swollen penultimate segment. Eyes strongly convex. Antenna hardly extending to the middle of the elytron; in the male sixth, seventh or eighth segments are greatly swollen and modified in a manner similar to that described under *Agetocera*; in the genotype only the sixth and seventh segments are modified *Prothorax* slightly broader than long, in some aspects quadrate; very slightly narrowed towards the base; sides slightly rounded before the middle, finely margined; anterior lateral angles almost right angles and rounded, posterior widely rounded; seta-bearing pore at each corner small; upper surface smooth, with a median transverse depression, front area moderately convex, sloping at each side, finely punctate or sometimes impunctate. *Scutellum* triangular with apex rounded, surface slightly convex, finely punctate in the genotype. *Elytra* broader at base than the prothorax; humerus raised, with the summit smooth and impunctate; upper surface fairly closely punctate. *Underside* sparsely covered with fine hairs, on the tibiæ the hairs are thicker and longer; in the genotype epipleuron broader at base with the surface somewhat concave and punctate, slightly narrowed behind the middle and continued very narrowly to the apex ; legs moderately long ; claws appendiculate.

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* The correct date is 1843 (Jan.), although 1849 or 1861 may occur on the title-page. See Sherborn and Palmer, "Dates of Charles d'Orbigny's 'Dictionnaire d'Histoire Naturelle,' 1839–49" (Ann. Mag. Nat. Hist. (7) iii, 1899, p. 350).

Distribution. INDIA. CEYLON. BURMA. CHINA. SIAM. SUMATRA. JAVA. BORNEO.

Key to the Species.

1. Elytra and pronotum not of strongly contrasting colours	2.
Elytra and pronotum of strongly contrasting colours	6.
2. General colour shining brown with a faint greenish-purple sheen, sides of breast and abdominal segments blue-green ; 7 × 3·25 mm.	*C. flava* Baly, p. 471.
No such combination of characters	3.
3. General colour metallic violaceous ; antennæ, labrum, palpi, tibiæ and tarsi black.	*C. monstrosa* Jac., [p. 473.
No such combination of colours	4.
4. General colour shining reddish-brown, antennæ and legs black, elytra not so reddish-brown and with purplish sheen, suture and lateral margins of elytra very finely edged with black ; 5 × 3 mm.	*C. nigricornis* Jac., [p. 474.
No such combination of characters	5.
5. General background colour black to piceous ; elytra blue-violet, abdominal sternites and at least the undersides of femora lighter brown ; 4·5–5 × 2–2·5 mm.	*C. nigricollis* Jac., [p. 474.
6. General colour bluish-black, prothorax and legs fulvous, elytra dark violaceous, scutellum obscure fulvous, labrum piceous ; 5 mm. long	*C. fulvicollis* Jac., [p. 475.
No such combination of characters	7.
7. General colour bright brown to piceous, elytra blue-black mixed with purple ; 5 × 2·5 mm.	*C. mandarensis* Jac., [p. 476.
General colour bright brown, elytra of predominating green colour with purplish sheen	8.
8. Antennæ and legs share the general colour ; 5·5 × 2·5 mm.	*C. andrewesi* Jac., [p. 476.
Antennæ and legs piceous to blackish ; 4·5–6 × 2·5 to nearly 3 mm.	*C. splendens* Duviv., [p. 478.

286. **Cerophysa flava** Baly.

Cerophysa flava Baly, Trans. Ent. Soc. Lond. 1886, p. 28.

General colour shining brown with a faint greenish-purple sheen ; sides of breast and abdominal segments blue-green ; in some cases tibiæ and tarsi piceous ; in two examples in the British Museum the suture and the margins of elytra piceous with metallic sheen, the underside including the epipleura blue-green, the tibiæ, tarsi and upper sides of femora with the metallic colour.

In some of the species of this genus it is noticed that among the blue-green coloured species one or two brown examples with the metallic sheen occur, and also that there are intermediate stages in coloration from the brown with the metallic sheen to the complete blue-green state.

Head: in the male the eighth segment of the antenna is considerably enlarged; hairs on the underside, more especially on that of the proximal segments, long; first segment club-shaped but not very long; second minute, globular; third narrowed at base, somewhat widened at the apex, longer than fourth and nearly three times longer than second; fourth to seventh considerably narrowed at base and widened at the apex, short and nearly equal to one another in length; eighth nearly equal in length to fourth to seventh together, ovoid, almost as broad at base as at apex, on the upper surface is a smooth slightly raised area with a hole situated more towards the apex; ninth small, globular, articulated in the middle of the apex of the eighth segment;

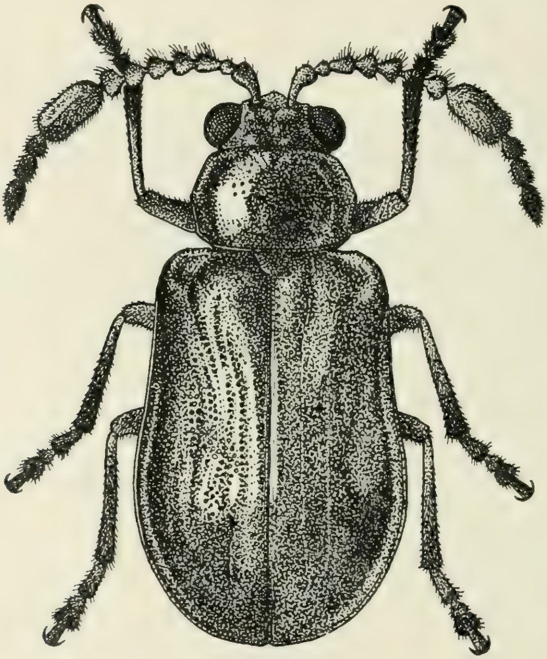

Fig. 120.—*Cerophysa flava* Baly.

tenth small, slightly longer than ninth; eleventh, with the apex pointed, longer than tenth. In the female the antenna hardly reaches the humerus; first segment club-shaped; second very short; third about twice as long as second; from the fourth the segments gradually increase in thickness, the eighth being the largest segment; eleventh bluntly pointed; the segments in one aspect appear to resemble a string of beads. *Prothorax*: depressions, one on each side of the middle, very small and shallow; upper surface very finely and sparsely punctate, some of the punctures comparatively larger than others. *Scutellum* broad, surface impunctate. *Elytra*: punctures larger and much stronger than those of the pronotum, with a tendency to arrange themselves in longitudinal rows; in some aspects one or two faint longitudinal ribs can be recognized, this feature is more marked in the type-example (which is a male) than in others. *Underside*: epipleuron plane, impunctate, very gradually narrowing and continued to the apex.

Secondary sexual characters. In the ♂ the eighth segment of antenna is enlarged and modified. In the ♀ the antennæ are short and resemble a string of beads.

Length, 7 mm.; *breadth*, 3·25 mm.

Distribution. BURMA (type-locality). PENANG (Pascoe Coll.).

Type in the British Museum.

287. **Cerophysa monstrosa** Jacoby.

Cerophysa monstrosa Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 948.

General colour metallic violaceous; antennæ, labrum, palpi, tibiæ and tarsi black.

Head: upper surface impunctate; frontal tubercles obsolescent. In the male antenna extends to the base of elytron; second segment very short; third more elongate and thickened; fourth short and transverse; fifth strongly transverse, curved and with a projecting point on its upper edge; sixth transversely thickened, deeply excavated above and placed lower than the preceding segment; seventh transversely quadrate; eighth broadly thickened, more elongate, deeply and longitudinally excavate; terminal segments short, transverse and dull (not shining). In the female antenna simple, eighth segment longest and subcylindrical, the terminal segments thickened. *Prothorax* subquadrate, upper surface with a deep and transverse depression. *Elytra* parallel-sided, upper surface with a few fine punctures. *Underside*: legs slender; first segment of the posterior tarsus as long as the two following segments together.

Length. Jacoby gives no measurements.

Distribution. BURMA : Karen Mts. (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

288. **Cerophysa nigricornis** Jacoby.

Cerophysa nigricornis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 274.

General colour shining reddish-brown ; antennæ and legs (except the coxæ and basal portions of femora) black ; elytra not so strongly reddish-brown and with purplish sheen, suture and lateral margins of elytra very finely edged with black.

Head : antenna extending to the middle of elytron ; covered with fine hairs, longer on the basal segments but becoming thicker onwards to the apex, second segment short, rounded ; third nearly twice as broad as second ; fourth very slightly longer than third and slightly thicker towards the apex ; fifth nearly equal to fourth ; sixth somewhat shorter ; seventh equal to sixth ; eighth longer, cylindrical ; ninth shorter than eighth ; ninth, tenth and eleventh nearly equal to one another, eleventh pointed towards the apex. *Prothorax* : surface smooth, impunctate, with a shallow median transverse impression and very fine transverse striations. *Scutellum* : surface impunctate. *Elytra* moderately sparsely punctate, punctures fine. *Underside* : epipleuron with surface slanting, narrowed before the middle and continued very narrowly to the apex.

Length, 5 mm. ; *breadth,* nearly 3 mm.

Distribution. BOMBAY : Kanara (Andrewes Coll.).

Type in the British Museum.

The two examples in the British Museum are females and the eighth segment of antenna is slightly enlarged. From analogy it may be inferred that the eighth segment of the male antenna will be more enlarged and modified.

289. **Cerophysa nigricollis** Jacoby.

Cerophysa nigricollis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 275.

General background colour black to piceous ; elytra blue-violet, in some cases the elytra show more of the basic piceous than of the blue-violet ; the abdominal sternites and at least the undersides of femora lighter brown.

Head : surface of frontal tubercles very finely and transversely striated. In the male antenna hardly extends to the middle of elytron ; hair clothing of the underside of segments from the third onwards long and bristly ; first segment club-shaped and more pronouncedly thickened than usual; second small and globular; third three times as long as second; fourth somewhat shorter than third but stouter towards the apex; fifth similar to fourth and equal in length; sixth and seventh greatly enlarged, both with modified flattish surface on the upper side; eighth much thinner than seventh and about equal to fifth; ninth shorter than eighth but equally stout; ninth and tenth equal; eleventh somewhat longer and with the apex pointed. In the female the antenna is similar but the sixth and seventh segments, though also larger and more dilated, are less so than in the male. *Prothorax* almost quadrate, somewhat broader than long; texture of the background presents a fine silky appearance, smooth and sparsely punctate, punctures very fine; a median transverse shallow impression. *Scutellum*: surface finely and transversely punctate. *Elytra*: upper surface moderately closely punctate, punctures well impressed and stronger than those of the pronotum.

Length (♂), 4·5 mm.; *breadth*, 2 mm.

Length (♀), 5 mm.; *breadth*, 2·5 mm.

Secondary sexual characters. In ♂ (1) the sixth and seventh segments of antenna enlarged and modified; (2) the first segment of both the front and middle tarsus dilated.

Distribution. BURMA: Toungoo.

Type in the British Museum.

290. **Cerophysa fulvicollis** Jacoby.

Cerophysa fulvicollis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 947.

General colour bluish-black, prothorax and legs fulvous, elytra dark violaceous; in the male eight basal segments of antenna fulvous, rest black, in the female the whole antenna black; scutellum obscure fulvous; labrum piceous.

Head: upper surface impunctate; frontal tubercles distinct; the interantennal continuation of the clypeus long and sharply raised. In the male antenna extends to half the length of the elytra; first segment swollen; second very short; five following segments strongly transverse, very short and gradually increasing in width; eighth enormously dilated, deeply excavated below, its margin dentate; ninth, tenth and eleventh slender, concave on the upper edge, tenth produced to a point, eleventh shorter and more strongly curved. In the female antenna simple. *Prothorax* one half as broad as long; sides nearly straight; upper surface with a rather deep transverse impression, impunctate. *Elytra* finely and sparsely punctate.

Length, 5 mm.

Distribution. BURMA : Pegu, Tikekee, vi. (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

291 **Cerophysa mandarensis** Jacoby.

Cerophysa mandarensis Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 397.

General colour bright brown to piceous, sometimes the brown is tinged with red ; elytra blue-black mixed with purple, sometimes the latter colour predominating and sometimes the former. In some cases the legs are piceous and the rest of brown parts bright reddish-brown. The scutellum shares the general colour of the body.

Head : in the male antenna extends to the middle of elytron ; hairs on the underside longer and thicker ; first segment club-shaped and considerably thickened ; second very small, rounded ; third a little more than twice as long as second, almost as broad at base as at apex, *i. e.* not appreciably constricted at base ; fourth nearly as long as third ; fifth slightly shorter than fourth ; fifth, sixth and seventh equal to one another in length, the two latter segments somewhat thicker towards the apex ; eighth very long, cylindrical, with a modified area on the upper side ; ninth, tenth and eleventh short, rounded and almost equal to one another in length, pointed apex of eleventh short. In the female the relationship of the segments is similar although, owing to the great enlargement of the eighth in the male, the basal segments are shorter than in the female ; the eighth segment in the female is also longer and more enlarged than others but not to such an extent as in the male. *Prothorax* : upper surface impunctate, median transverse depression moderately deep. *Elytra* : upper surface with the background finely shagreened, moderately sparsely punctate, punctures fine. *Underside* : epipleuron becoming slanting after the middle, surface with a few well-impressed punctures, continued narrowly to the apex, approaching which the surface becomes somewhat convex.

Length, 5 mm. ; *breadth,* 2·5 mm.

Distribution. BENGAL : Mandar, Barway (*Père Cardon*). MALABAR : Mahé (*Maindron*).

Type in the British Museum.

292. **Cerophysa andrewesi** Jacoby.

Cerophysa andrewesi Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 396.

General colour bright brown ; antennæ dark brown, with the modified eighth segment darker ; in one of the two specimens

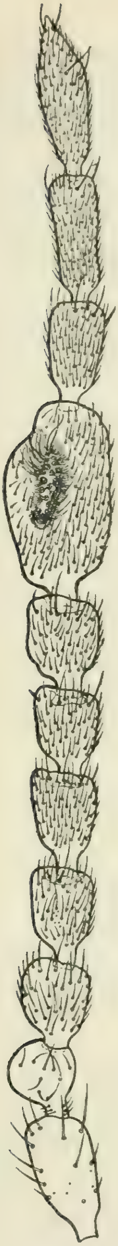

Fig. 121.

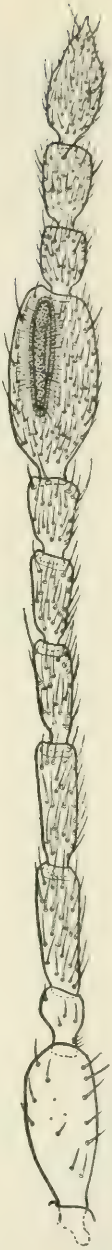

Fig. 122.

Fig. 121.—*Cerophysa andrewesi* Jacoby. Left antenna of male.
Fig. 122.—*Cerophysa splendens* Duvivier. Left antenna of male.

before me surface behind the interocular line blackish; scutellum piceous with metallic sheen; elytra metallic green or green with purplish sheen, suture very finely edged with reddish tint.

Head: antenna extending to the middle of the elytron; first segment club-shaped and somewhat laterally flattened near the apex; each of the second to seventh segments dorsally raised in a ridge and laterally flattened, although each side is slightly convex, the convex portion sparsely covered with hairs; second shorter than third; fourth longer than third; fifth slightly shorter than fourth; sixth slightly shorter than fifth; seventh equal to sixth; eighth considerably enlarged, narrowed at the base, widened in the middle and again somewhat narrowed towards the apex, on the dorsal surface a deeply excised channel from near the middle to the apex; ninth cylindrical, shorter than tenth; tenth also cylindrical, nearly equal to eleventh; eleventh ovoid, bluntly pointed towards the apex. *Prothorax*: upper surface with the background finely shagreened, a few very scattered fine punctures, median transverse impression moderately deep. *Scutellum*: surface very finely and transversely strigose. *Elytra*: upper surface with the background finely shagreened, sparsely punctate, punctures fine and well impressed; a small area along the suture behind the scutellum somewhat depressed. *Underside*: surface of the epipleuron narrowing and becoming slanting after the middle and with a few strongly impressed punctures.

Length, 5·5 mm.; *breadth*, 2·5 mm.

Distribution. Nilgiri Hills (Andrewes Coll.).

Type in the British Museum.

293. **Cerophysa splendens** Duvivier.

Cerophysa splendens Duviv., Stett. Ent. Zeit. xlvi, 1885, p. 392.

Underside, head, prothorax and scutellum shining red-brown; antennæ and legs piceous to blackish; elytra blue-green with faint purplish sheen; sometimes the head is blackish.

Head: in the male antenna extends to a short distance beyond the humerus; the club of first segment much thickened; second segment very short, globular; third to seventh segments somewhat flattened dorso-ventrally, each narrowed at base and much widened at apex, with long hairs on the underside; third and fourth about equal, nearly three times as long as second; fifth shorter than fourth; fifth, sixth and seventh nearly equal to one another, seventh widest at the apex; eighth longest, enlarged, almost cylindrical, with the upper surface somewhat depressed along the middle and a long incision beginning from a point not far from the base and ending in a slightly drawn forwards lip formed by the meeting of the twol ateral rings, which are sharp and strongly chitinized ; ninth, tenth and eleventh thickly covered with hairs both on the upper and the underside, very slightly flattened dorso-ventrally, ninth shorter than tenth, tenth and eleventh nearly equal, the latter gradually drawn to a point. In the female the club of the first segment not so much thickened as in male ; proportionally the relationship of the other segments is similar ; the eighth is cylindrical and thicker than others but shows no extraordinary structures. *Prothorax* : upper surface impunctate, depression on each side of the middle line round and moderately deep. *Scutellum* : surface impunctate. *Elytra* : upper surface with the background finely shagreened, moderately sparsely punctate, punctures fine, in a certain aspect with proper lighting a few scattered, erect, short hairs can be seen under a high magnification. *Underside* : epipleuron narrowed from the middle, becoming somewhat convex towards the apex, surface with a few scattered punctures.

Length, 4·5–6 mm. ; *breadth*, 2·5 to nearly 3 mm.

Distribution. CEYLON : Kandy, vi. 1908 (*G. E. Bryant*).

Type location unknown to me. Named examples in the British Museum.

Genus **TAUMACERA** Thunberg.

Taumacera Thunb., Vetenskaps Academiens Handlingar, 1814, p. 48.
Thaumacera Thunb., Weise, Tijdschr. Ent. lxv, 1922, p. 84.
Metellus Jac., Ann. Mus. Civ. Genova, xxiv, 1886, p. 63 ; id., l. c. xxxvi, 1896, p. 499 ; id., Stett. Ent. Zeit. lx, 1899, p. 298.
Nacrea Baly, Trans. Ent. Soc. Lond. 1886, p. 29 ; Weise, Philipp. Journ. viii, 3 D, 1913, p. 231.
Neocharis Jac., Proc. Zool. Soc. Lond. 1881, p. 448.

GENOTYPE : *Taumacera deusta* Thunb.

The original spelling of the generic name is without the "*h*" after the "*T*."

Body oblong, somewhat broad.

Head : upper side gently convex, smooth, impunctate, depressed in front in the middle just behind the frontal tubercles ; the latter not well developed ; clypeus abruptly raised behind in front of interantennal space and then gradually sloping down on all sides, surface of the summit smooth and of rest not smooth, provided with short erect hairs ; clypeus broader than long with the front margin emarginate ; maxillary palpus with the penultimate segment somewhat swollen and apically conical ; labial palpus shorter. Eyes convex but not strongly so. Antenna hardly extending to the apical area of elytron; first segment thickened but not long; second minute; third very large, modified, broad, ovate, laterally concave on the outer side, inner side with deep hole; fourth to eleventh segments nearly equal to one another, each segment ovate and stoutish, these segments thickly covered with short whitish hairs. *Prothorax* broader than long, slightly narrowed towards the base; front and hind margins almost straight; sides oblique, somewhat convex in front of the middle; of the four corners the front ones thickened, hind ones obtuse, each with a seta-bearing pore; upper surface gently convex from side to side, on each side of the middle a very shallow depression; sparsely punctate. *Scutellum* triangular, apex rounded, surface slightly convex, smooth and impunctate. *Elytra* broader at base than the prothorax; humerus not very prominent; surface moderately closely punctate; each lateral margin very narrowly reflexed. *Underside* covered with hairs; epipleuron gradually narrowed behind the middle, continued to the apex, inner margin slightly raised. Legs moderately stout, not very long, first segment of hind tarsus somewhat longer than the corresponding segments of either the front or middle tarsus, second segment shorter than first, third bilobed; claws appendiculate.

Distribution. INDIA. SUMATRA. JAVA. BORNEO.

294. **Taumacera deusta** Thunberg.

Taumacera deusta Thunb., Vetensk. Ac. Handling. 1814, p. 48, pl. 4 A, fig. 1.
Thaumacera deusta Thunb., Weise, Tijdschr. Ent. lxv, 1922, p. 85.
Œdicerus apicipennis Baly, Ann. Mag. Nat. Hist. (5) iv, 1879, p. 110.
Nacrea apicipennis Baly, Trans. Ent. Soc. Lond. 1886, p. 29.

General colour brown, moderately shining, scutellum and a small area on each elytron blackish, tip of last antennal segment dark.

Length, 7 mm.; *breadth*, 4 mm.

Distribution. INDIA.

Type of Baly's *apicipennis* in the British Museum.

Type of *deusta* in the Stockholm Museum.

The above descriptions of the genus and species are taken from Baly's type, his identification label containing only "India." From the above references it appears that Baly described the same insect at different times under different genera. The illustration given with Thunberg's description agrees with Baly's type. Weise states that *deusta* and *apicipennis* are one and the same species, and I accept this view.

Genus **XENARTHRA** Baly.

Xenarthra Baly, Journ. of Ent. i, 4, 1861, p. 298; Chapuis, Gen. Col. xi, 1875, p. 249; Jac., Proc. Zool. Soc. Lond. 1887, p. 108.

GENOTYPE, *Xenarthra cervicornis* Baly. Fixed by Baly.

Body small, oblong, apex rounded.

Head together with the eyes not broader than prothorax; upper surface moderately convex, shagreened, with a depression behind the frontal tubercles; the latter well developed, with a median longitudinal channel, surface shagreened; clypeus raised; labrum broader than long, with a short median emargination and a few scattered hairs; maxillary palpus with the penultimate segment not much thickened and the apical segment conical, not very small; labial palpus much shorter than maxillary. Eyes moderately strongly convex. Antenna in the female extending nearly to the apical area, in the male somewhat longer than the body; female antenna without modifications of the segments, in the male third to eleventh modified in the following way:—First segment club-shaped, not very long; second small and rounded; third as broad at base as the apex of second, widened at apex, acutely produced at the inner angle and less so at the outer angle; fourth, fifth and sixth considerably flattened, almost as broad at base as at apex, appropriately fitting into one another; seventh with a curved, short branch on the inner margin; eighth and ninth each with a long branch from the base of the inner margin, the former not bent and the latter bent at a short distance from its point of origin on the segment; tenth approximately ovate dorsally, with a short projection at the inner apical angle and with a specialized smooth excavated surface on the ventral side, on which is a distinct orifice; eleventh long with the apical portion (which looks like a distinct segment) convex dorsally, smooth and concave in a peculiar way ventrally, and pointed at the apex. In the female, first segment long and club-shaped; second small and rounded; third nearly four times as long as second; fourth somewhat shorter than third; fourth and fifth nearly equal; sixth slightly shorter than fifth; from the sixth the segments are nearly equal in length; from the eighth the segments are slightly stouter; the apex of eleventh clearly delimited; some of the hairs of the hair-clothing of antennæ are bristly. *Prothorax* somewhat broader than long, front and hind margins almost straight, the latter margined and with the portions on each side adjoining the corners somewhat emarginate; sides slightly sinuate near the middle, margined; anterior corners thickened, posterior obtuse, each corner with a seta-bearing pore; upper surface depressed across the middle, background finely shagreened, very finely and sparsely punctate, punctures not very distinct. *Scutellum* triangular with the apex acute and surface impunctate. *Elytra* broader at base than the prothorax ; humerus prominent, a certain basal area distinctly convex ; upper surface background finely shagreened, strongly punctate, punctures moderately large, in places arranged in longitudinal series, somewhat rugose in the middle area, sparsely covered with hairs, each hair standing out singly, moderately long, erect, directed slightly backwards. *Underside* sparsely covered with fine hairs, the latter finer, shorter and sparser than those of upper surface ; epipleuron gradually narrowed behind the middle, inner margin somewhat raised, surface shagreened and with long, erect, sparsely distributed hairs similar to those of elytra. Legs moderately long and slender, hind legs much longer than either the middle or front legs and, therefore, each segment of a hind leg is proportionately longer than the corresponding segment of the other legs ; claws appendiculate.

Distribution. CEYLON.

The above description is drawn up from the genotype.

Key to the Species.

1. Margins of pronotum and head black ; elytra bluish-green with a slight bronzy sheen, when brown the bronzy sheen is retained to a certain extent ; although in some cases the black of the pronotum and head is discharged, some trace of it can be seen ; 5–6 × 2·5–2·75 mm.	*X. cervicornis* Baly, p. 482.
No such combination of characters	2.
2. Pronotum with five black patches, three in a triangle in the middle area and two lateral, elytra with ill-defined longitudinal black patches ; 7·25 × 3·5 mm.	*X. mirabilis* Jac., p. 483.
Pronotum and elytra without markings	3.
3. Insect large, entirely brown above with bronzy or violaceous sheen ; 8·5 × 3·75 mm.	*X. unicolor* Jac., p. 485.
Insect small, entirely brown above without any metallic sheen ; 5·75 × 2·5 mm.	*X. lewisi* Jac., p. 485.

295. **Xenarthra cervicornis** Baly.

Xenarthra cervicornis Baly, Journ. of Ent. i, 4, 1861, p. 299, pl. xii, fig. 4 ; Allard, Comptes-Rendus Soc. Ent. Belg. xxxiii, 1889, p. cxiv.

General colour brown ; external margin of first to sixth segments of antenna light brown, rest blackish ; sides of pronotum and head up to the eye black ; scutellum brown ; elytra bluish-green with a slight bronzy sheen ; small apical portions of front and middle tibiæ and a considerable portion of hind tibia and all tarsi (except front ones) piceous. In the most melanic examples the pronotal black tends to cover more of the surface in front and the tibial and tarsal colours are stronger. When the specimens are of lighter colour the elytra are reddish-brown and the head and pronotum almost brown, the former retaining the metallic sheen to a certain extent and the latter a trace of the black.

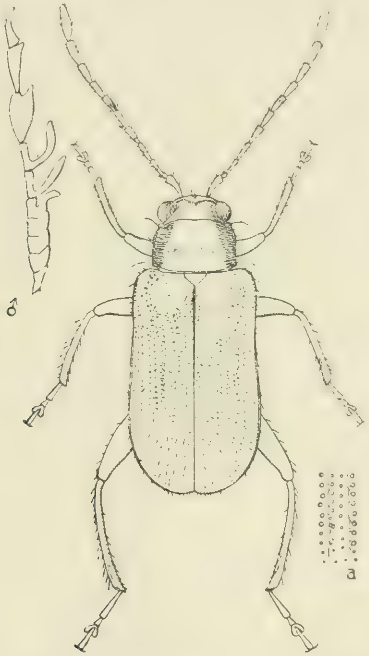

Fig. 123.—*Xenarthra cervicornis* Baly, ♀. *a*, showing arrangement of punctures. The figure on the left is that of an antenna of the male.

Secondary sexual character. In ♂ the antennæ are modified.
Length, 5–6 mm.; *breadth*, 2·5–2·75 mm.
Distribution. CEYLON: Kandy, vii. 1905 (*G. E. Bryant*).
Type in the British Museum.

296. **Xenarthra mirabilis** Jacoby.

Xenarthra mirabilis Jac., Proc. Zool. Soc. Lond. 1887, p. 107, pl. xi, fig. 9.

Resembles the genotype in form and general structure. General colour light brown with the following black markings:—Upper surface of head with three patches, one median and longitudinal and two lateral, one on each side, reaching to the eye; pronotum with five patches, three in a triangle on the middle area (two in a transverse line in front and one behind) and along each lateral margin a large oblique patch, which seems to have been formed by the fusion of two patches; on the elytra a large basal patch including the humerus, behind the basal convex area two patches in a depression and five longitudinal stripes of unequal lengths, the longest being nearest the suture and the shortest towards the lateral margin on each elytron, these are not well defined; suture, margins all round and epipleuron blackish; on the underside breast and patches on the upper sides of femora and tibiæ blackish; antenna blackish except an undefined region around each point of articulation, which is brownish, the last segment also lighter brown, one surface of each flattened segmental branch lighter than the other.

Head together with the eyes somewhat broader than the prothorax; upper surface impunctate; frontal tubercles well developed, a depression behind them, a fine median longitudinal impression between. Eyes very strongly convex. Antenna extending to the apical area of elytron; in the male first segment club-shaped with the outer side concave; second small, rounded; from the third to tenth each segment at the apex prolonged on the inner side into a flattened branch, the latter longer than the segment itself; all branches are nearly equal to one another except that of the tenth, which is somewhat shorter; eleventh segment longest, cylindrical and with a well-defined apex; antennæ everywhere covered with stiff hairs. *Pronotum*: upper surface background shagreened, impunctate except for a few obsolescent punctures on the front area; a few erect hairs along each lateral margin. *Scutellum* with apex acute and surface sparsely covered with long hairs. *Elytra*: each elytron with a depression behind the basal area; punctate, punctures tending to arrange themselves in groups in longitudinal series; covered with long hairs, as in the genotype, but more numerous. *Underside*: epipleuron also with a few long hairs.

Secondary sexual characters. In ♂ each of the segments of antenna from the third to tenth with a long flattened branch from the inner apical angle. ♀ unknown.

Length, 7·25 mm.; *breadth*, 3·5 mm.

Distribution. CEYLON: Bogawantalawa, 4,900–5,200 ft., 28. ii.–12. iii. 1882 (*G. Lewis*).

Type in the British Museum.

297. **Xenarthra unicolor** Jacoby.

Xenarthra unicolor Jac., Proc. Zool. Soc. Lond. 1887, p. 109, pl. xi, fig. 11.

Entirely brown with a slight metallic violaceous sheen on the upper side, a certain apical portion of tibiæ and all tarsi piceous.

Head: upper surface impunctate, sparsely covered with erect isolated hairs; frontal tubercles well developed, with a median longitudinal impression. Eyes strongly convex. Antenna extending nearly to the apical area of elytron; first segment club-shaped; second very small, rounded; from third to ninth each segment with long cylindrical branch arising from the inner side; each branch arises near the apex of the segment but without actually arising from the apical angle; tenth long, ovate, swollen; eleventh somewhat shorter and thinner than tenth, with the apical portion not distinctly delimited; some of the hairs in the hair-clothing are bristly. The above is the description of the male antenna; female unknown. *Prothorax*: upper surface finely shagreened, sparsely punctate, depressed on each side of the middle, with erect long hairs which are more closely placed along the lateral margins and the lateral areas in front. *Scutellum* also with a few long hairs. *Elytra*: upper surface moderately closely covered with fine punctures, with long hairs. *Underside*: epipleuron narrowed behind the middle, also with long erect hairs.

Secondary sexual character. In ♂ antennæ are modified. ♀ unknown.

Length, 8·5 mm.; *breadth*, 3·75 mm.

Distribution. CEYLON: Colombo, coast-level, 7–27. iv. 1882 (*G. Lewis*).

Type in the British Museum.

The hair-clothing in this species is more conspicuous than in other species.

298. **Xenarthra lewisi** Jacoby.

Xenarthra lewisi Jac., Proc. Zool. Soc. Lond. 1887, p. 108, pl. xi, fig. 10.

Body smaller. Entirely brown, without any metallic sheen; two apical segments of antenna of both male and female piceous.

Head together with the eyes somewhat broader than the prothorax; upper surface finely shagreened, impunctate, with very fine sparsely distributed hairs (these should be looked for under proper illumination). Antenna in the male extending to the apex of elytron, in the female a little shorter; first segment club-shaped; second small, rounded; in the male each segment from third to ninth with a fairly long branch arising from near the inner apical angle of the segment, each branch is not so long and not rounded as in *unicolor* but somewhat flattened as in *mirabilis* although much narrower; unlike the other two in this species at the point where the branch issues from the side of the segment the margin expands slightly, this feature is more marked in seventh, eighth and ninth segments, attaining the maximum in the latter; tenth broadened, convex above, concave below, slightly emarginate in the outer margin, inner margin expanded with the angle drawn into a point; eleventh long, cylindrical with the apical portion delimited; hair-clothing fine. In the female third, fourth and fifth segments nearly equal to one another; sixth slightly shorter than fifth; sixth to eleventh nearly equal to one another, eleventh with the apical portion delimited. *Prothorax*: upper surface shagreened, with a depression on each side of the middle, impunctate; long hairs along each lateral margin and a few along the front margin near the corner. *Scutellum* with a few hairs. *Elytra*: upper surface moderately closely punctate, punctures with a slight tendency towards longitudinal seriation on middle area near the suture; moderately thickly covered with erect singly-situated hairs. *Underside*: epipleuron narrowed behind the middle, inner and outer margins somewhat raised, with long erect hairs on the surface.

Secondary sexual character. In ♂ the antennæ are modified.

Length, 5·75 mm.; *breadth*, 2·5 mm.

Distribution. CEYLON: Dikoya, 3,800–4,200 ft., 6. xii. 1881–16. i. 1882 (*G. Lewis*); Kandy, vi. 1908 (*G. E. Bryant*).

Type in the British Museum.

Genus **HYPHÆNIA** Baly.

Hyphænia Baly, Ann. Mag. Nat. Hist. (3) xvi, 1865, p. 410; Chapuis, Gen. Col. xi. 1875, p. 242.

Trichocerastes Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 413.

GENOTYPE, *Luperus pilicornis* Motschulsky. Fixed by Baly.

Baly erected this genus, selecting one of Motschulsky's species, *pilicornis*, as the genotype, but he does not state whether he had seen Motschulsky's type of the species. One year after Baly's publication Motschulsky founded *Trichocerastes*, the first described species being *flavofemoratus*, and he also indicated that *pilicornis* should be included in it. If Baly never saw Motschulsky's type it is possible that his conception of *pilicornis* may be different from that of Motschulsky's. It is not possible to decide this question without comparing Motschulsky's type with the insect (in the British Museum) Baly calls *pilicornis*. Whether or not *Trichocerastes* should be considered as a synonym of *Hyphænia* depends on whether the two species *flavofemoratus* and *pilicornis* really belong to the genus *Trichocerastes*. I have no means of settling the questions raised here, but attention is drawn to them so that they may be solved in future by somebody more favourably situated. In the present work the position is based on the assumption that Baly is right. The figure given here is taken from Baly's example.

Body oblong, narrowing somewhat towards the apex.

Head together with the eyes broader than the prothorax; owing to the eyes being large the interocular space is narrow, consequently the roots of antennæ are very close together; frontal tubercles not convex, transverse, a median longitudinal impression between and a depression behind; clypeus generally raised but with a slight depression in the middle on the area which narrows behind in the interantennal space; labrum broader than long with a slight emargination in the middle; maxillary palpus swollen. Eyes strongly convex. Antenna extending to the apex of elytron in the male, somewhat shorter in the female; first segment long, club-shaped, the club being very thick; second very small, rounded; in the male each segment from third to seventh has long hair-fringes hanging down from the underside; third longer than fourth; fourth to seventh nearly equal to one another; fifth, sixth and seventh slightly bent on the upper side; eighth, ninth, tenth and eleventh without very long fringes on the underside, nearly equal to one another. In the female the very long fringes are absent. *Prothorax* broader than long, front margin almost straight, hind margin slightly sinuate; each side gently rounded, margined, slightly reflexed; anterior angles somewhat thickened, posterior angles obtuse, each convex with a seta-bearing pore; upper surface convex from side to side, sloping down in front on each side, a shallow depression across the middle, sparsely and finely punctate, with one or two coarser punctures. *Scutellum* triangular with the apex rounded and surface smooth and impunctate. *Elytra* broader at base than the prothorax; humerus prominent; each side sharply margined and very narrowly reflexed; upper surface confusedly and closely punctate, punctures strongly impressed. *Underside* sparsely covered with fine hairs; epipleuron gradually narrowed behind the middle, continued to the apex, inner margin sharp. Legs not very long nor very slender; first segment of tarsus longer than second, third bilobed, claw-segment projecting from the bilobed segment; claws appendiculate.

Distribution. BURMA. PENANG.

Probably it has a wider distribution.

The above description is drawn up from the examples named by Baly. There is nothing in Motschulsky's description that definitely negatives Baly's identification.

299. **Hyphænia pilicornis** (Motschulsky).

Luperus pilicornis Motsch., Étud. Ent. vii, 1858, p. 99.
Trichocerastes pilicornis Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 414.

General colour black, upper surface of head sometimes red-brown, underside pitch-brown to blackish; scutellum black; elytra blue, in some lights with a purplish sheen.

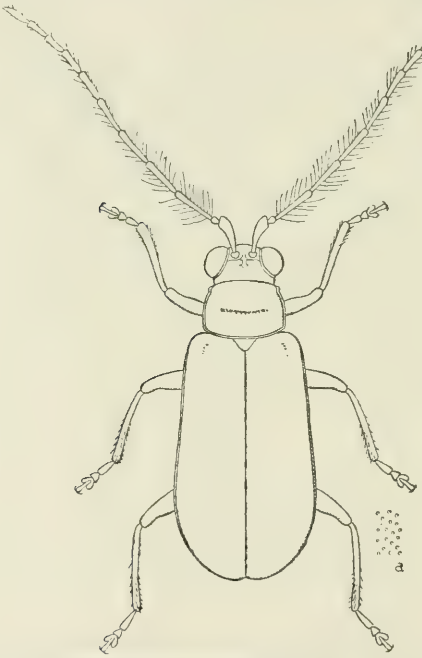

Fig. 124.—*Hyphænia pilicornis* Motschulsky. From Baly's example in the British Museum. *a*, the nature of punctation.

Length, 6–6·5 mm.; *breadth*, 3 mm.

Distribution. Burma. Penang.

Type in the Moscow University Museum. Baly's examples are in the British Museum.

300. **Hyphænia submetallica** Jacoby.

Hyphænia submetallica Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 985 ; Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 299.

Body narrowly elongate. Vertical area of head violaceous, lower portion brown ; antennæ black, with the basal segment obscure brown ; prothorax brown with a violaceous sheen ; scutellum black ; elytra metallic violaceous ; underside obscure dark metallic blue, legs brown, tarsi fuscous.

Head broad, impunctate. Antenna extending beyond the apex of elytron ; second segment very short ; third and fourth elongate, equal ; seventh to ninth curved ; all segments with long fringe of hairs along the outer margin. *Prothorax* one-half broader than long, very slightly narrowed at base, all margins nearly straight ; upper surface with two depressions, impunctate. *Elytra* closely and finely punctate, with traces of longitudinal impressed lines.

Length, 5 mm.

Distribution. BURMA : Karen Mts. (*Fea*).

Type in the Genoa Museum.

According to Jacoby this species is larger than *pilicornis* and differs in the colour of head and legs : he described it from a single specimen.

I have not seen the type. The above description is taken from Jacoby's original in English.

301. **Hyphænia obscuripennis** Jacoby.

Hyphænia obscuripennis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 298.

Body small. General colour shining fuscous with violaceous sheen ; head, three basal segments of antenna, prothorax and legs brown ; underside obscure brown.

Head together with the eyes broader than the prothorax ; upper surface convex, smooth, shining, impunctate ; frontal tubercles well developed with a median longitudinal impression and a transverse one behind. Eyes strongly convex. Antenna extending to the apex of elytron ; first segment club-shaped, not very long ; second very short, rounded ; from third to eleventh segments nearly equal to one another ; in some aspects fourth, fifth and sixth seem slightly bent on the upper side ; from the third all segments thickly covered with hairs issuing from all sides, this condition is unlike that of *pilicornis*. *Prothorax* subquadrate, slightly broader than long, somewhat narrowed towards the base ; each side somewhat rounded before the middle, finely margined ; front angles slightly thickened, each corner with a seta-bearing pore ; upper surface with a wide depression across the middle, in front on each side sloping down, impunctate. *Scutellum* with the apex acute and surface impunctate. *Elytra* broader at base than the prothorax, a certain basal area slightly convex ; confusedly and moderately closely punctate.

Length, 4 mm. ; *breadth*, 1·75 mm.

Distribution. BOMBAY : Belgaum (Andrewes Coll.).

Type in the British Museum.

The following species cannot be determined at present. The descriptions given are free translations from the originals in Latin, and are inserted here for the sake of completeness.

Trichocerastes flavofemoratus Motschulsky.

Trichocerastes flavofemoratus Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 414.

Resembles *Luperus longicornis* but somewhat smaller. Elongate, parallel-sided, subconvex, shining green ; eyes, antennæ and underside black ; first segment of antenna, front part of femora brown ; tibiæ and tarsi fuscous. Eyes large, prominent. Prothorax narrower than head, subquadrate, slightly narrowing posteriorly ; transversely impressed in the middle, hairless. Elytra twice as broad as and four times as long as the prothorax, rugose-punctate.

Length, a little less than 2 mm. ; *breadth*, 1 mm.

Distribution. CEYLON : Nuwara Eliya.

Type in the Moscow University Museum.

Trichocerastes sericeus Motschulsky.

Trichocerastes ? *sericeus* Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 414.

About twice as broad as the previous species. Elongate, parallel-sided, subconvex ; testaceous, basal margin of elytra fuscous, eyes and antenna (except the base) black. Prothorax subtransverse. Elytra twice as broad as the prothorax, finely punctate, coriaceous, covered with brownish silky hairs.

Length, 4 mm. ; *breadth*, 2 mm.

Distribution. CEYLON : Nuwara Eliya.

Type in the Moscow University Museum.

Trichocerastes viridimarginella Motschulsky.

Trichocerastes ? *viridimarginella* Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 414.

Resembles in form and colour *Calomicrus circumfusis* but the legs are paler. Elongate, subconvex, shining, pale testaceous ; antennæ, eyes and mesothorax black ; head and prothorax rufo-testaceous, margined with greenish-black, suture and margins of elytra also greenish-black. Elytra twice as broad as the prothorax.

Length, 2·5 mm. ; *breadth*, 1 mm.

Distribution. CEYLON : Nuwara Eliya.

Type in the Moscow University Museum.

Genus **PHYLLOBROTICA** Redtenbacher.

Phyllobrotica Redtb., Gattung deutschen Käferfauna *, 1845, p. 114 ; Fauna Austrica, 1849, p. 525 ; Fowler, Col. Brit. Isl. iv, 1890, pp. 321–2.

GENOTYPE, *Chrysomela quadrimaculata* Linn.

The full title of the work in which Redtenbacher first proposed the name is given below. I have not seen this work. Scudder erroneously gives 1849 as the date of first publication of the name *Phyllobrotica*.

Body small, oblong, sometimes slightly broadened behind.

Head together with the eyes not broader than the prothorax ; upper surface gently convex, punctate or impunctate, a median longitudinal impression sometimes absent ; frontal tubercles well developed, with a median longitudinal impression between and a transverse impression behind ; clypeus triangularly raised ; labrum broader than long ; maxillary palpus with the apical segment conical, almost as long as the penultimate segment, which is not very swollen. Eyes convex but not strongly. Antenna extending slightly beyond the middle of elytron, sparsely covered with fine hairs ; first segment long and club-shaped ; second short ; third somewhat longer than second ; fourth longer than third. *Prothorax* much broader than long, front and hind margins almost straight ; sides also almost straight ; sometimes the posterior angles rounded ; each corner with a rather pronounced seta-bearing pore ; upper surface with general depression transverse, often impunctate. *Scutellum* triangular with the apex rounded and surface smooth and impunctate. *Elytra* broader at base than the prothorax ; humerus somewhat raised ; upper surface confusedly and moderately closely punctate, punctures not very distinct. *Underside* sparsely covered with fine hairs ; epipleuron very narrow, hardly distinguishable in some species. Legs fairly long and slender ; first segment of hind tarsus longer than corresponding segments of either the middle or front tarsus, second segment shorter, third bilobed, claw-segment projecting beyond the bilobed segment ; claws appendiculate.

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* 'Die Gattungen der deutschen Käferfauna nach der analytischen Methode bearbeitet, nebst einem Kurzgefassten Leitfaden, zum Studium dieses Zweiges der Entomologie.' Wien, Gerold, 1845, 8, 177 pp., 2 plates.

Distribution. NORTH and SOUTH AMERICA. EUROPE. ASIA MINOR. CAUCASUS. SIBERIA. CHINA. CEYLON.

Key to the Species.

Elytra not hairy ; 4·5 × 2 mm.	*P. marginata* Jac., p. 492.
Elytra hairy ; 3 × 1·25 mm.	*P. hirtipennis* Jac., p. 493.

302. **Phyllobrotica marginata** Jacoby.

Phyllobrotica marginata Jac., Proc. Zool. Soc. Lond. 1887, p. 104.

Body oblong, somewhat narrowed at the apex.

General colour brown, elytra somewhat lighter ; apical seven or eight segments of antenna, scutellum, suture, margins all round and tarsi piceous.

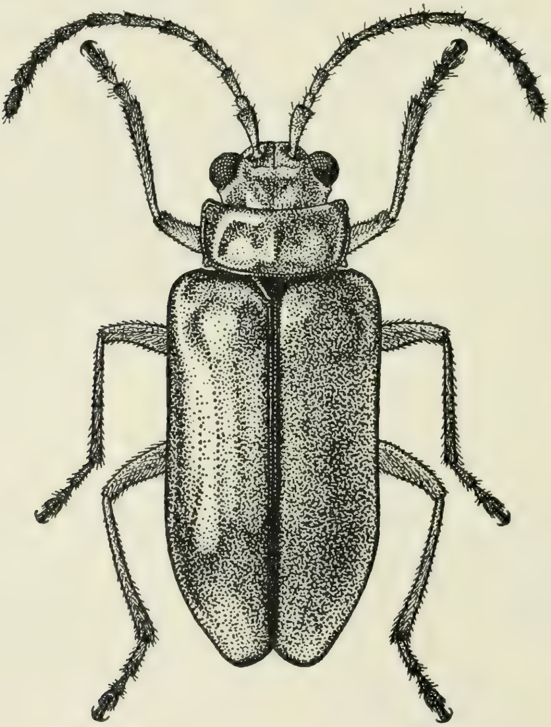

Fig. 125.—*Phyllobrotica marginata* Jacoby.

Length, 4·5 mm. ; *breadth*, 2 mm.

Distribution. CEYLON : Nuwara Eliya, 6,200–8,000 ft., 8–11. ii. 1882 (*G. Lewis*).

Type in the British Museum.

Note that this species has been taken at a high altitude.

303. **Phyllobrotica hirtipennis** Jacoby.

Phyllobrotica hirtipennis Jac., Proc. Zool. Soc. Lond. 1887, p. 103.

Resembles *marginata* but much smaller and elytra with fine whitish hairs. General colour brown ; seven or eight segments of antenna, scutellum, suture, and in the more melanic examples basal area of elytra including humerus, sides of elytra and underside, with portion of tibiæ and tarsi blackish ; elytra generally darker than the general brown colour.

Length, 3 mm. ; *breadth*, 1·25 mm. ; *length* of antenna, 2·5 mm.

Distribution. CEYLON : Bogawantalawa, 4,900–5,200 ft., 28. ii.–12. iii. 1882 (*G. Lewis*).

Type in the British Museum.

Genus **HOPLASOMEDIA** gen. nov.

GENOTYPE, *Hoplasomedia chinmatra* sp. nov.

Resembles *Hoplasoma* Jacoby in form and general structure but differs in the claws being appendiculate.

Body oblong, parallel-sided, narrow, slender. *Head* together with the eyes broader than the prothorax when the eyes are more strongly convex in the male ; upper surface convex, smooth, with a few punctures bearing hairs ; frontal tubercles well developed, smooth, impunctate, with a median longitudinal impressed line and delimited behind by a transverse impression ; clypeus raised as a whole, in males in which the eyes are very large it is narrow ; labrum broader than long with the sides rounded ; maxillary palpus not swollen. Eyes strongly convex. Antenna slender, extending a short distance beyond the middle of elytron or reaching to the apical area ; in the male sometimes thickened towards the apex ; first segment long and club-shaped ; second small and rounded ; from the third the segments are thickly covered with hairs. *Prothorax* much broader than long, slightly narrowed towards the base ; front margin almost straight, hind margin straight in the middle portion and sinuate towards each lateral angle ; each side oblique, slightly rounded in front, margined and reflexed ; each corner with a seta-bearing pore ; upper surface smooth, with a broad depression across the middle, consequently the surface in front convex, impunctate or sometimes indistinctly punctate. *Scutellum* triangular, smooth, impunctate. *Elytra* much broader at base than the prothorax, parallel-sided, margins somewhat reflexed ; humerus convex, impunctate ; upper surface often indistinctly punctate, sometimes more distinctly, shining or subnitid, lateral surface on each elytron often concave and sometimes deeply between two longitudinal ribs both arising from behind the humerus ; in some cases some scattered erect hairs more evident on the apical and lateral areas and along the margins. *Underside* covered with fine hairs; epipleuron very narrow, continued to the apex. Legs long, slender; posterior tarsus longer than that of middle or front leg, claw-segment projecting beyond the bilobed segment which is generally feeble; claws appendiculate.

Secondary sexual characters. In ♂ (1) a single process issues from the visible basal abdominal sternite and extends to a considerable distance along the abdomen. It seems to have a joint near the base and broadens towards the apex, where it is modified. Sometimes the apex is somewhat emarginate. Compare this process with the double one of the genus *Hoplasoma* (pp. 162–3). (2) The antenna in some cases becomes stouter towards the apex. (3) The last visible abdominal segment is modified.

Distribution. EASTERN HIMALAYAS. ASSAM. BURMA.

Key to the Species.

1.	Head, pronotum and elytra distinctly shining	2.
	Head, pronotum shining, elytra dull	4.
2.	Rib from the humerus along the median area slightly curved, extending almost to apical area, pronounced	3.
	No such pronounced rib; elytra not distinctly punctate; 5·5 × 2 mm.	*H. krisha* sp. n., p. 496.
3.	Elytra pale yellowish-white, underside black; antennæ in ♂ thickened apically; 5·5–7 × 2–3 mm.	*H. chinmatra* sp. n., [p. 494.
	Elytra dark brown, underside not black, at most dark, otherwise brown; antennæ in ♂ not thickened apically; 5·75 × 2·5 mm.	*H. sarata* sp. n., [p. 496.
4.	Elytra distinctly punctate; elytra dark brown, underside black; 6–7 × 2·5 mm.	*H. rasha* sp. n., p. 497.
	Elytral punctures not very distinct	5.
5.	Elytra pale yellowish-white; 5·75 × 2 mm.	*H. krishila* sp. n., [p. 497.
	Elytra red-brown; 5·75 × 3 mm.	*H. nirada* sp. n., p. 498.

304. **Hoplasomedia chinmatra** sp. nov.

Upper surface shining; elytra pale yellowish-white, head and prothorax slightly darker, legs coloured like the elytra; breast and abdomen black; four apical segments of antenna black, the rest varying from pitch-brown to lighter brown.

Head: upper surface sparsely punctate, each puncture having a hair. In the male eyes very large and very strongly convex. Antenna extending to about the middle of elytron; in the male third segment nearly equal to fourth; fifth slightly shorter than fourth; from the fifth the segments begin to become flatter and broader up to the eleventh, which is not so flat; fifth and sixth nearly equal; seventh shorter than sixth; eighth, ninth and tenth nearly equal to one another; eleventh with pointed apex slightly longer than tenth. In the female the segments are not flattened, the relative lengths remaining the same. *Prothorax*: depression widely concave, surface impunctate. *Elytra*: upper surface with the punctures not well defined and with two pronounced ribs from behind the humerus enclosing a deep concavity, the outer rib stronger, so that the surface between it and the lateral margin is almost vertical; suture prominent; a few scattered hairs on the apical and lateral areas.

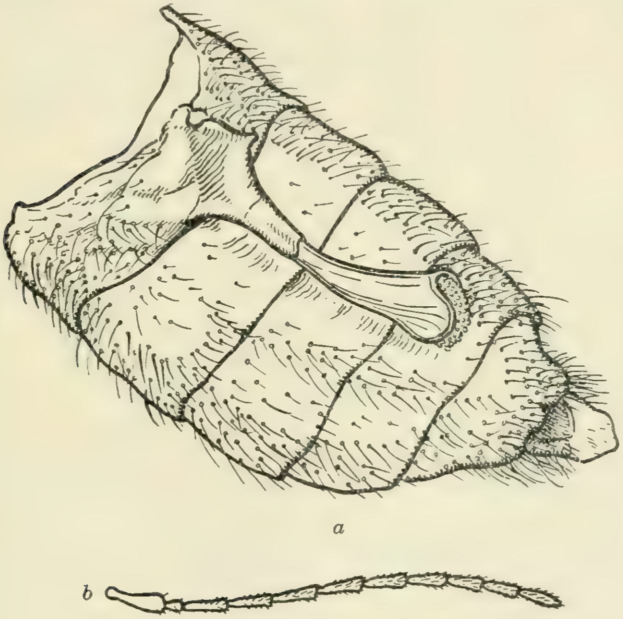

Fig. 126.—*Hoplasomedia chinmatra* sp. nov. (*a*) abdomen of male, showing the process; (*b*) antenna of female.

Secondary sexual characters. In ♂ (1) antenna thickened towards the apex; (2) abdominal process present; (3) last visible abdominal sternite modified.

Length, 5·5–7 mm.; *breadth*, 2–3 mm.

Distribution. TENASSERIM: Tandong, May (*Fruhstorfer*).

Type in the British Museum.

Described from three examples.

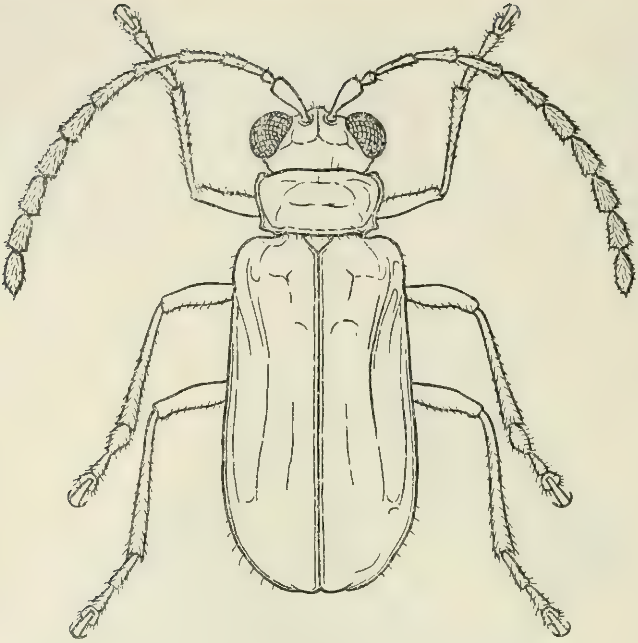

Fig. 127.—*Hoplasomedia chinmatra* sp. nov.

305. **Hoplasomedia krisha** sp. nov.

Entirely shining brown, elytra paler; breast and abdominal segments black.

Head: antenna extending a short distance beyond the middle of elytron; third segment long, somewhat shorter than fourth; fifth nearly equal to third; from the fifth onwards the segments become progressively shorter. *Elytra* indistinctly punctate; along each side is a short concavity which is not bounded by distinctly raised ribs.

Length, 5·5 mm.; *breadth*, 2 mm.

Distribution. BURMA: Kalaw, 4,300 ft., 4. v. 1918 (*Y. R. Rao*), Lashio, 5. iv. 1918.

Type in the British Museum; *paratypes* in the Pusa Collection.

Described from six examples.

306. **Hoplasomedia sarata** sp. nov.

Upper surface, including elytra, shining dark brown; underside brown as the upper side or breast and abdominal sternites darker, tending to be blackish.

Head: in the male eyes very large and strongly convex. No modification, such as swollen segments, in the antenna; from the third the segments are nearly equal to one another, the difference in length being very slight, but the apical three tend to be slightly shorter. *Prothorax* comparatively slightly longer than that of *chinmatra*; upper surface with a few scattered punctures. *Elytra* distinctly punctate; lateral concavity on each elytron bounded by two sharply raised ribs both arising from the humerus.

Secondary sexual character. In ♂ a single process from the first abdominal sternite similar to that of *chinmatra*.

Length, 5·75 mm.; *breadth*, 2·5 mm.

Distribution. ASSAM: Patkai Mts. (*Doherty*).

Type in the British Museum.

Described from four examples.

307. **Hoplasomedia rasha** sp. nov.

Upper surface and general colour dark brown, not shining, head and elytra more shining than elytra; breast and abdominal sternites black.

Head: eyes not large. Antenna extending a short distance beyond the middle of elytron; from the third onwards the segments are nearly equal to one another. *Prothorax* comparatively longer than that of *chinmatra*; sides with the reflexed margin somewhat more pronounced; upper surface impunctate. *Elytra* distinctly punctate, punctures well impressed; lateral concavity short, not bounded by pronounced ribs.

Length, 6 mm.; *breadth*, 2·5 mm.

Distribution. ASSAM: Patkai Mts. (*Doherty*).

Type in the British Museum.

Described from three examples.

308. **Hoplasomedia krishila** sp. nov.

Elytra pale yellowish-white, generally brown; breast and abdominal sternites black; elytra not shining, head and pronotum shining.

Head: eyes large, strongly convex. Antenna extending nearly to the apical area; fourth segment longer than third; fifth somewhat shorter than fourth, fifth to eighth nearly equal to one another; ninth slightly shorter than eighth; ninth, tenth and eleventh nearly equal to one another. *Prothorax* comparatively longer than that of *chinmatra*. *Elytra* indistinctly punctate; a short lateral concavity on each elytron, not bounded by distinct ribs.

Length, 5·75 mm.; *breadth*, 2 mm.

Distribution. TENASSERIM : Tandong, May (*Fruhstorfer*).
Type in the British Museum.
Described from four examples.

309. **Hoplasomedia nirada** sp. nov.

General colour red-brown ; head and prothorax shining, elytra not shining ; breast and abdominal sternites black.

Head seen from above broad, eyes strongly convex but not large, so that the interocular space is not narrowed. Antenna extending to the apical area of elytron ; from the third onwards the segments are nearly equal to one another. *Prothorax* comparatively longer than that of *chinmatra*, sides and posterior border very distinctly margined ; upper surface almost impunctate or having very finely and sparsely distributed punctures. *Elytra* : punctures not very distinct ; lateral concavity absent or only a faint trace of it.

Length, 6·5 mm. ; *breadth*, 3 mm.

Distribution. BENGAL : Duars, v. 1907 (*D. Nowrojee*).

Type in the British Museum ; *paratypes* in the Pusa Collection.

Described from forty-two examples.

Genus **PARIDEA** Baly.

Paridea Baly, Journ. Linn. Soc. Lond. xx, 1886, p. 26.

GENOTYPE, *Galleruca tetraspilota* Hope=*Paridea thoracica* Baly. Fixed by Baly.

Body oblong, broadened posteriorly. General colour usually brown with black spots and patches on the elytra.

Head together with the eyes narrower than the prothorax ; somewhat narrowed in front ; upper surface behind the interocular transverse line not strongly convex, impunctate, slightly depressed in the middle ; frontal tubercles broad, flattened, a median longitudinal channel present and the transverse channel behind them deeply impressed ; clypeus large, generally raised, a median longitudinal ridge continued between the antennæ, each side sloping down but not excavated, surface with a few scattered hairs ; labrum quadrate or slightly broader than long, sides straight, rounded at the anterior lateral angles, front part somewhat bent down ; mandibles not large, surface with a few long hairs ; maxillary palpus strongly dilated, apical segment bluntly conical and set on the swollen penultimate one ; labial palpus much more slender and shorter, apical segment moderately long and acutely pointed. Eyes convex but not large. Antenna long, slender, extending nearly to the apical area of elytron ; first segment long, club-shaped ; second small, rounded ; third nearly twice as long as second ; fourth nearly equal to third ; fifth equal to fourth ; sixth very slightly shorter than fifth ; sixth to eleventh nearly equal to one another, latter sharply pointed ; antenna except the two basal segments sparsely covered with hairs. *Prothorax* quadrate or slightly broader than long ; front margin straight, hind margin almost straight or with a slight sinuation ; sides narrowed towards the base, widening before the middle, margins sharp, somewhat reflexed ; anterior lateral angles acute, slightly thickened, posterior right angles ; seta-bearing pore at each anterior angle large, dorsal, and at each posterior angle small, lateral ; upper surface with a deep transverse excavation, area in front of excavation strongly convex and that behind it hardly convex, whole surface very sparsely punctate, punctures extremely fine. *Scutellum* small, triangular, surface somewhat convex, smooth, impunctate. *Elytra* much broader at base than the prothorax ; slightly constricted behind the shoulders ; upper surface moderately closely punctate, punctures fine but well impressed and much stronger than those of the pronotum ; lateral margins slightly explanate and reflexed. *Underside* very sparsely covered with fine hairs ; epipleuron broader at base, somewhat narrowed before the middle, becoming vertical and disappearing altogether as the apex is approached ; legs slender, posterior tibia somewhat longer than the middle or anterior tibia, posterior tarsus also slightly longer than either of other tarsi, first segment of posterior tarsus longer than the first segment of either the middle or anterior tarsus, second segment of tarsus short, the third bilobed segment feeble, slender, claw-segment projects considerably beyond the bilobed segment ; claws appendiculate.

Distribution. INDIA. BURMA. SUMATRA.

The above description is from the genotype. The structural features of this genus do not vary very much. In the following descriptions of the species colour characters will be fully stated and the deviations in structure from the genotype will be indicated.

Insects showing colour-pattern as is found among members of this genus (and this phenomenon occurs in many groups of Coleoptera) may prove to be derivatives of a single species. Whether this is true or not cannot be determined by comparative study alone. To settle this point experimental breeding is also necessary. I have, therefore, not interfered with names that have been regarded as species, and have introduced others as varieties. In my opinion it is not important whether various forms comprising this genus are regarded as species or varieties. All that is necessary for our present purpose is a synopsis for their easy recognition. The following key is designed with this point in view. Owing to the grouping of species that I have adopted here, the sequence of the species in the text is somewhat different from that in the key.

Key to the Species.

1. At least the head, pronotum and scutellum, and often basal margin of elytra including the humeral area black . . . . 9.
   Head, pronotum and scutellum very often not black (in one case black) . . . . 2.
2. General colour black except the following parts, which are light brown or yellowish-white :—Head, antennæ, prothorax, legs, a transverse bar across middle of elytra and a spot at extreme apical area; labrum and scutellum black; 4 mm. long *P. unifasciata* Jac., [p. 503.
   No such combination of characters . . . . . . 3.
3. Elytra entirely light brown to dark brown. 4.
   Elytra entirely black; 5–6·5 × 4·25 mm. . *P. nigripennis* Jac., [p. 509.
   Elytra with the suture and elytral margins all round red-brown; 5 × 3 mm. . . . . *P. octomaculata* var. [*patkaiensis* nov., [p. 505.
   Elytra with black spots or patches on a brown background . . . . 5.
4. General colour pale testaceous; head and prothorax pale fulvous; labrum piceous; breast blackish; pygidium deeply bifurcated (a female secondary sexual character); 5·5 mm. long . . . . *P. bifurcata* Jac., p. 509.
   General colour shining brown; breast, middle and hind tibiæ and tarsi in varying degree black; prothorax shining red; 5·75 × 3·5 mm. . . . . *P. ruficollis* Jac., [p. 510.
   General colour dark brown with following parts black :—Metasternum, abdomen (except the last segment), upper side of anterior tibia, tibia and tarsi of middle and posterior legs; 6·5 × 2·6 mm. . . . . . . *P. livida* Duviv., [p. 510.
   General colour pale brown, breast black to piceous; postscutellar area on each side of suture modified in male; 6 × 3·5 mm. *P. foveipennis* Jac., [p. 511.
5. Each elytron with two spots, one basal and the other postmedian, four in all . . . . . . 6.
   Each elytron with four spots, two basal and two postmedian, eight in all . . . . . . 8.
   Apical portion of elytra piceous, faintly diffused towards the base; postscutellar area modified in male; 6 × 3·5 mm. . . *P. foveipennis* Jac., [p. 511.
6. Antennæ and legs entirely light coloured. . 7.
   Antennæ and legs not entirely light coloured; 4·5–5 mm. long. . . . . *P. approximata* Duviv., [p. 503.
7. Spots on elytra smaller; insect smaller, 5–5·5 × 3 mm. . . . . *P. tetraspilota* (Hope), [p. 501.
   Spots on elytra very large; insect larger, 6·5 × 3·5 mm. . . . . *P. balyi* Jac., p. 502.
8. Insect smaller, 6·5 × 3·5 mm. or slightly smaller; spots on elytra larger . . . . *P. octomaculata* (Baly), [p. 504.
   Insect larger, 7·75 × 4·75 mm.; spots on elytra reduced and more rounded . . . . . . *P. perplexa* Baly, [p. 505.

9.	Insect not less than 6 × 4 mm.	10.
	Insect always less than 6 × 4 mm.	11.
10.	A large light band across elytra extending to the extreme elytral margins; special sexual characters	*P. dohertyi* sp. n., [p. 505.
	Light band across elytra not so large and not extending to the extreme elytral margins, which are black; no special sexual characters	*P. dohertyi* var. [*divisa* nov., p. 506.
	Black basal margin of elytra considerably reduced (in one case absent); apical black reduced to roundish spots; no special sexual characters	*P. dohertyi* var. *assama* [nov., p. 506.
11.	On a black background four light patches on elytra, two median and two apical; 4 × 2·5 mm.	*P. quadriplagiata* [Jac., p. 506.
	On a black background the patches have extended to two bands across elytra; 5·5 × 3 mm.	*P. quadriplagiata* var. [*fasciata* nov., p. 508.
	On a black background three median and two apical light patches; 5 × 3 mm.	*P. quadriplagiata* var. [*quinqueplagiata* [nov., p. 507.
	On a black background elytra very light with a basal black band occupying nearly one-third of the surface; antennæ, apices of femora, undersides of legs and sides of abdomen light brown; male secondary sexual character, a hook near the suture on each elytron at about the middle; 4 mm. long	*P. cornuta* Jac., p. 508.

310. **Paridea tetraspilota** (Hope).

Galleruca tetraspilota Hope, in Gray, Zool. Miscell. 1831, p. 29.
Paridea thoracica Baly, Journ. Linn. Soc. Lond. xx, 1886, p. 27; Duvivier, Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. xlv, and Ann. Soc. Ent. Belg. xxxvi, 1892, p. 432.

General colour shining brown; each elytron with two patches, one basal and the other postmedian: breast always black, abdominal sternites with three longitudinal series of spots, one median and two lateral (one on each side). In the type-example of *tetraspilota* the basal elytral patch is large, almost quadrate, covers the humerus, extends transversely towards the margin and the suture but without staining either and longitudinally more along the posthumeral area than along the postscutellar area: the postmedian patch is large, commencing near the suture, extends and widens towards the apex, covering a large area and staining the extreme lateral margin; abdominal sternites with three rows of spots. In the type-example of *thoracica* the brown parts are darker except the elytral brown which is very light; the basal black patch is smaller, roundish, does not cover the humerus, does not stain the extreme lateral margin and is much farther away from the suture: the postmedian patch is a broad band with anterior and posterior margins uneven, widens somewhat towards the side, staining the extreme lateral margin and approaches the suture without staining it : abdominal sternites with two lateral rows of spots.

Secondary sexual character. In ♂ the last visible abdominal segment is trilobed.

Measurements of the type-example of *tetraspilota* : *length*, 5 mm. ; *breadth*, 3 mm.

Measurements of the type-example of *thoracica* : *length*, 5·5 mm. ; *breadth*, 3 mm.

Distribution. NILGIRI HILLS. NEPAL (locality of *tetraspilota*, Hardwicke Coll.). ASSAM : Sadiya (*Doherty*), Patkai Mts. (*Doherty*), Manipur. BURMA : Ruby Mines (*Doherty*) ; Momeik (*Doherty*). YUNNAN. SIAM. FORMOSA.

Types in the British Museum.

This species has a wide distribution. Owing to the fact that the two colours—black and brown—have spread on the body in different degrees, entomologists who had not sufficient material in front of them have given several names to the same species.

311. **Paridea balyi** Jacoby.

Paridea balyi Jac., Ann. Soc. Ent. Belg. xlii, 1898, p. 190.

Resembles the genotype in form and structure. General colour shining brown with two large spots (one basal and the other postmedian) on each elytron ; breast black. The basal patch is large, occupying a considerable portion of the basal area, quadrate in form and stains the basal margin, humerus, lateral margin (but not the extreme margin) extending up to the suture, leaving only a narrow strip brown. The postmedian patch is roundish, extending to the lateral margin and to the suture but without staining either.

Head : antenna extending to the middle of elytron ; fifth segment shorter than fourth ; from the fifth the segments are nearly equal to one another. *Prothorax* : upper surface impunctate in the middle area but with a mixture of coarser and finer punctures on the lateral areas. *Elytra* punctate, punctures on the basal area behind the humerus irregularly arranged in paired rows which disappear on the apical area where the punctures are sparser and finer ; on the humerus, which is strongly raised, the punctures are also finer ; the punctures of paired rows are coarser, the interstices containing finer ones. *Underside* : epipleuron somewhat narrowed only towards the apex.

Length, 6·5 mm. ; *breadth*, 3·5 mm.

Distribution. ASSAM : Khasi Hills.

Type in the British Museum.

312. **Paridea approximata** Duvivier.

> *Paridea approximata* Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 430.

Resembles the genotype in form and structure. General colour light brown with the following parts black :—The antennæ (except the base), meso- and metasternum, basal portions of femora and tibiæ, apical portions of latter, scutellum and two large patches on each elytron and a part of epipleuron. The basal patch occupies a quarter of the surface, neither reaching the suture (which it approaches closely) nor the margin : the epipleuron below the shoulders is not black. The second elytral patch is suboval, covering the third quarter of the elytral surface and reaching the margin where it covers the epipleuron but not the suture, where it is rounded.

Secondary sexual characters. In ♂ (1) on each elytron near the sutural apical angle is an ovate tubercle : (2) the last visible abdominal sternite is trilobed.

Length, 4·5–5 mm.

Distribution. BENGAL : Konbir (*Père Cardon*) : Kurseong (*Père Braet*).

Type location unknown to me. There is a specimen in the British Museum from Kurseong.

I believe this species is a variety of *tetraspilota=thoracica.*

313. **Paridea unifasciata** Jacoby.

> *Paridea unifasciata* Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 957.

Resembles the genotype in form and structure. General colour black except the following parts which are light brown or yellowish-white :—Head, antennæ, prothorax, legs, a transverse band across the middle of elytra and a spot at the extreme apical area. Labrum and scutellum black. The light median band is slightly curved in the middle and extends slightly backwards at the suture. The upper margins of all femora and tibiæ and posterior tarsi are black.

Length, nearly 4 mm.

Distribution. BURMA : Karen Mts. (*Fea*) : Ruby Mines (*Doherty*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

Variation. In the collection of the British Museum there are two examples which may be regarded as varieties of *unifasciata.* In the example from the Naga Hills, Assam (length 4·5 mm., breadth 2·5 mm.) the head is darker brown, the median light band crosses the suture but does not reach the extreme lateral margin, the suture narrowly continues to be of the light colour till it merges with the apical light patch which covers a considerable area in this specimen. The femora and tibiæ are not margined with black on the upper side, nor are the posterior tarsi black. In the other example from Bengal (length 4·5 mm., breadth 2·5 mm.) the labrum and a large roundish patch on the upper surface of head are black, the antennæ are dark brown, the median light band reaches the extreme lateral margin and the suture, the extreme lateral and apical margins and the suture almost up to the scutellum are of the light colour. The continuity of the light colour all round suggests that the four spots on the elytra have become so enlarged that they almost fill the whole surface. In this case the femora and tibiæ have the upper surface lined with black, and all tarsi are smoky.

314. **Paridea octomaculata** (Baly).

Aulacophora octomaculata Baly, Journ. Linn. Soc. Lond. xx, 1886, p. 17.

Resembles the genotype in form and structure. General colour shining brown, darker in some parts and lighter in others ; in the type-example the head shows two diffused blackish patches on the upper side ; each elytron with four black patches, two basal and two apical ; of the basal patches one lies between the scutellum and the humerus and the other is more laterally placed behind the humerus, of the apical patches one is situated nearer the suture and the other on the lateral area, eight patches in all on both elytra. These patches show a great deal of variation in their size but their position relative to one another is a remarkably constant feature. In the type-example the lateral patches are larger than those placed more near the suture. The abdominal tergites have a broad median black stripe, on the exposed pygidium there are two patches, one on each side. The breast is always black. The abdominal sternites have three series of spots, one median and two lateral (one on each side). Of the elytral patches the inner basal one is somewhat elongate, and in some cases, increasing in extent, has fused with the subhumeral patch. In other cases the patches have been reduced to small spots. It is conceivable that these patches by fusion may produce the basal and apical bands as in *unifasciata*, and still continuing to increase result in a condition in which the whole of elytra is covered except the suture and the margins all round (an example in the British Museum from Patkai Mts., Assam), and finally the elytra may be completely black as in *nigripennis*.

That the groups I have indicated may be only varieties of one species can be proved by breeding them : comparison of characters leads to speculation but will not help us in arriving at the true relationships.

Length, nearly 6·5 mm. ; *breadth*, 3·5 mm.

Distribution. INDIA (type-locality and no more information). WESTERN HIMALAYAS : Mussooree ; Almora, Chaubattia, 6,000–7,000 ft. (*S. R. Archer*). ASSAM : Manipur (*Doherty*).

Type in the British Museum.

var. **patkaiensis** nov.

Resembles the genotype in form and structure. General colour red-brown, elytra black, but the suture and margins all round narrowly red-brown, breast red-brown like the general colour of the body, scutellum red-brown.

This variety may be assumed to have been produced by the spreading of the black spots over the entire elytral surface.

Length, 5 mm. ; *breadth*, 3 mm.

Distribution. ASSAM : Patkai Mts. (*Doherty*).

Type in the British Museum.

Described from one example.

315. **Paridea perplexa** Baly.

Aulacophora perplexa Baly, Cist. Ent. ii, 1879, p. 447.
Paridea perplexa Baly, Trans. Ent. Soc. Lond. 1889, p. 304.

Resembles *octomaculata* Baly in form, structure and coloration but differs in (1) being somewhat larger in size, (2) having the elytral spots reduced and more rounded in form.

Length, 7·75 mm. ; *breadth*, 4·75 mm.

Distribution. BENGAL : Mungpu. ASSAM (from the hilly regions) (*A. W. Chennell*) ; Manipur (*Doherty*). BURMA : Momeik (*Doherty*), Toungoo, North Chin Hills.

Type in the British Museum.

316. **Paridea dohertyi** sp. nov.

Resembles the genotype in form and structure. General colour red-brown to yellowish-white, the following parts black :—Head, prothorax, scutellum, basal and apical portions of elytra with a large yellowish-white area between them. On the underside breast black, basal and apical portions of epipleuron blackish. Interocular area round the roots of antennæ light brown. Mouth-parts light brown.

Secondary sexual characters. In the ♂ (1) on the elytra a large postscutellar area is faintly delimited ; (2) the last visible tergite exposed, narrowing towards the apex which is rounded ; (3) the last visible sternite trilobed, with the median lobe deeply excavated.

In ♀ (1) the last visible tergite is exposed, narrow and deeply bifurcated; (2) the last visible sternite is also bifurcated in the middle but the lobes are much smaller and deeply emarginate on each side of each lobe. These parts are thickly covered with fine hairs.

Length, 6 mm. ; *breadth*, nearly 4 mm.

Distribution. Burma : Karen Mts. (*Doherty*).

Type in the British Museum.

Described from three examples.

Note that in *P. bifurcata* Jac. the female secondary sexual character—the bifurcated pygidium—is similar.

var. **divisa** nov.

Resembles *dohertyi* in form, structure and colour pattern but differs in having the light elytral patch somewhat reduced and in not having similar secondary characters. In some cases the light patch has not reached the lateral margin. In some cases the abdominal sternites are brown while in others they are piceous or have a median longitudinal stripe.

Length, 6 mm. ; *breadth*, nearly 4 mm.

Distribution. Perak. Sumatra.

Type in the British Museum.

One specimen in the collection of the British Museum is marked as Jacoby's type with the above name. I am unable to trace a published reference to it.

var. **assama** nov.

Resembles *dohertyi* in form, structure and colour pattern but differs in having the basal black on elytra considerably reduced, the apical patch reduced to a roundish spot and in not having similar secondary sexual characters. In one example from the Patkai Mts. the elytra are entirely of the lighter colour without any trace of the black spots or patches, but the underside is completely black (except the legs), a condition which does not occur in those that have the black patches on the elytra, in which the abdomen is brown.

Length, 6 mm. ; *breadth*, 3·75 mm.

Distribution. Assam : Patkai Mts. (*Doherty*) ; Sadiya (*Doherty*).

Type in the British Museum.

317. **Paridea quadriplagiata** Jacoby.

Paridea quadriplagiata Jac., Nov. Zool. i, 1894, p. 327.

Resembles the genotype in form and structure. General colour black, each elytron with two whitish patches, one median occupying a large portion of elytral surface and the other a much smaller spot on the extreme apical surface, four in all on both elytra. Each patch is surrounded on all sides by black.

Length, 4–5 mm. ; *breadth*, 2·5–3 mm.

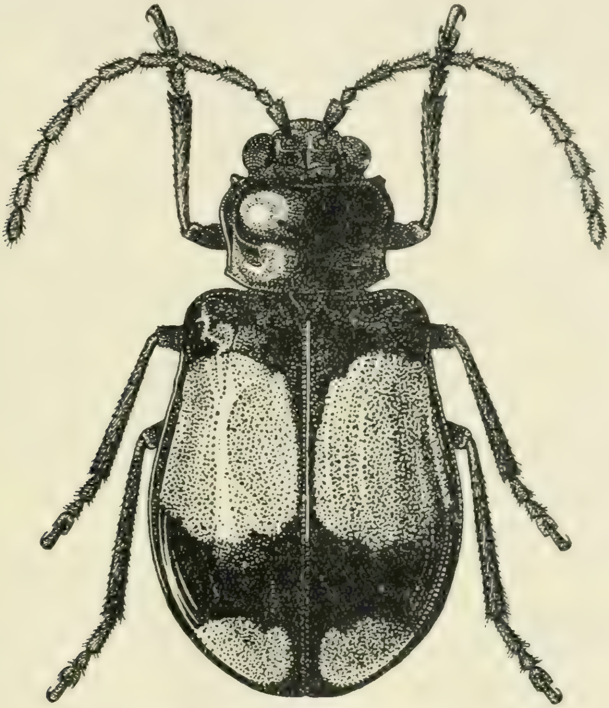

Fig. 128.—*Paridea quadriplagiata* Jacoby.

Distribution. ASSAM : Khasi Hills (Brit. Mus.). BURMA : Karen Mts. (type-locality), v.–xii. 1888 (*Fea*) : Ruby Mines (*Doherty*).

Type in the British Museum.

var. **quinqueplagiata** nov.

Resembles *quadriplagiata* in form, structure and general colour but differs in having the median elytral light patch modified in the following manner :—It has spread to the suture and to the elytral margin including the corresponding portion of epipleuron : the basal and postmedian black areas have been produced into small spurs along the middle on each elytron and these, joining, have divided the light fascia into three patches, one median on the suture common to both elytra and two lateral. In this variety the apical light patch on each elytron is similar to that in *quadriplagiata*, roundish and surrounded on all sides by black. There are thus altogether five patches on both elytra. In some examples the incomplete fusion of the spurs shows a transitional stage from the fasciate condition to that of the present variety. In this variety portions of antennæ and legs have become much lighter.

Length, 4·5–5 mm. ; ***breadth***, 2·75–3 mm.

Distribution. BURMA : Ruby Mines (*Doherty*) ; Karen Mts. (*Doherty*).

Type in the British Museum.

Described from seven examples.

var. **fasciata** nov.

Resembles *quadriplagiata* in form, structure and general coloration but differs in having the light median elytral patch extended to the suture and the lateral margin including the corresponding portion of epipleuron, from both of which the black colour is discharged (so that a fascia across the elytra is formed), in having the entire apical area light brownish and in having portions of the legs turning light in colour.

Length, 5·5 mm. ; ***breadth***, 3 mm.

Distribution. ASSAM : Patkai Mts. (*Doherty*).

Type in the British Museum.

Described from one example.

318. **Paridea cornuta** Jacoby.

Paridea cornuta Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 954.

General colour black ; antennæ, apices of femora, undersides of legs and the sides of abdomen flavous ; elytra yellowish-white with a narrow black band at base, including the scutellum, and occupying about one-third the length of elytra.

Head : antenna nearly two-thirds the length of the elytron ; third and following segments nearly equal to one another. *Prothorax* entirely impunctate. *Elytra* closely punctate, punctures arranged in irregular paired rows.

Secondary sexual characters. In ♂ (1) behind the middle near the suture is a short curved whitish hook on each elytron ; (2) the last visible abdominal segment is trilobed.

Length, about 4 mm.

Distribution. BURMA : Karen Mts. (*Fea*).

Type in the Genoa Museum. Described from a single male example. I have not seen the type of this species.

The above description is taken from Jacoby's original account in English.

319. **Paridea nigripennis** Jacoby.

Paridea nigripennis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 955.

Resembles the genotype in form and structure, but the body is more widened behind, lateral margins of elytra more reflexed, sides below the humerus deeply excavated. General colour red-brown having varying shades in different places, owing probably to the fact that the red component is easily discharged. Elytra and breast black. Jacoby states that in the male the anterior portion of elytra is black while the extreme lateral margin and the apex are brown.

Head: antenna extending to the middle of elytron: third and fourth segments nearly equal; from the fifth the segments are nearly equal to one another. *Prothorax*: upper surface nearly impunctate except for a few punctures on the anterior lateral portions. *Elytra*: upper surface not uniformly smooth, having a shallow depression behind the scutellum on the sutural area: humerus very prominent, almost impunctate; on the inner side of it a longitudinal sulcation, behind it an indistinct longitudinal ridge, and below it the surface very sparsely and finely punctate; on the middle area punctures large and coarse with a tendency to arrange themselves in longitudinal rows, elsewhere punctures sparse and fine. *Underside*: epipleuron with the surface convex and a few scattered punctures, somewhat narrowed towards the apex.

Length, 5–6·5 mm.; *breadth*, 4·25 mm. across the most widened posterior portion.

Distribution. BURMA: Karen Mts. (*Fea*).

Type in the British Museum. This is a female example. *Type* of male in the Genoa Museum.

320. **Paridea bifurcata** Jacoby.

Paridea bifurcata Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 953.

Body ovate, convex. General colour pale testaceous, head and prothorax pale fulvous, labrum piceous, breast blackish or dark piceous. Pygidium produced into two points with a deep division between, margins of the lobes with a fringe of hairs and the extreme apex black.

Head impunctate. Antenna extending to about half the length of elytron; second segment small; third very slightly shorter than fourth. *Prothorax* twice as broad as long; sides straight at base, strongly rounded before the middle; upper surface with a deep transverse channel, anterior convex portion with a few punctures near the anterior angles. *Elytra* punctate, punctures fine, arranged in irregular and closely approximated rows, the interstices also minutely punctate.

Length, about 5·5 mm.

Distribution. Burma : Karen Mts. (*Fea*).

Type in the Genoa Museum. Described from a single female example. I have not seen the type of this species.

The above description is taken from Jacoby's original in English.

321. **Paridea ruficollis** Jacoby.

Paridea ruficollis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 953.

Resembles the genotype in form and structure. General colour shining brown ; breast and middle and hind tibiæ and tarsi black in varying degree ; prothorax shining red. Some examples in the collection of the British Museum referred to this species have the prothorax brown instead of red and the middle and hind tibiæ and tarsi brown instead of black. In one example from Burma (with the label of identification in Jacoby's handwriting) the prothorax is red but the middle tibiæ and tarsi are brown and not black. This shows that there is considerable variation in the colour characters.

Head : antenna extending to about the middle of elytron. *Prothorax* : a few punctures on the sloping sides in front. *Elytra* : punctures arranged for a short distance behind humerus in paired rows, elsewhere confusedly and more finely punctate.

Length, 5·75 mm. ; *breadth*, 3·5 mm.

Distribution. Bengal : Mushidabad ; Mungpu. Assam. Burma : Karen Mts. (*Fea*) (type-locality) ; Toungoo.

Type in the Genoa Museum. Many examples in the British Museum from Toungoo, Burma.

322. **Paridea livida** Duvivier.

Paridea livida Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 432.

Resembles the genotype in form and structure. General colour dark brown with the following parts black :—Metasternum and abdomen (except the last segment), upper side of anterior tibia, tibia and tarsus of middle and posterior legs. Labrum piceous, apex of antenna darker, palpi, head and pronotum reddish to red-brown.

Secondary sexual characters. In ♂ the last but one visible abdominal sternite is produced behind into a moderately long subtriangular lobe resting on the last sternite ; the latter itself is trilobed, the median lobe being somewhat short and with a transverse impression.

Length, 6·5 mm. ; *breadth*, 2·6 mm.

Distribution. EASTERN HIMALAYAS: Kurseong (*Bract*), Phedong (*Desgodins*, Oberthür Coll.). ASSAM: Khasi Hills (Brit. Mus.).

Type location unknown to me.

This species may be an extreme form in which most of the black has disappeared.

323. **Paridea foveipennis** Jacoby.

Paridea foveipennis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 956.

Resembles the genotype in form and structure. General colour pale brown, sometimes legs darker brown; breast black to piceous; apical portion piceous, faintly diffused towards the base.

Head: antenna extending to nearly two-thirds the length of elytron; third segment somewhat longer than fourth; from the fourth the segments are nearly equal to one another. *Prothorax* much broader than long; upper surface almost impunctate except for a few indistinct punctures on the sloping lateral surface in front. *Elytra* slightly broader at base than the prothorax. In the male the postscutellar area is modified in the following way:—On each side of scutellum the surface is swollen, the outer side of it is a large shallow excavation which is in turn bounded on the outer side by a fairly large hump on which are one or two points, presumably orifices. In front of this prominence is the strongly raised humerus. Behind the scutellum, obliquely placed from the suture on each elytron, is a deep incision bounded on the sutural side by a much more swollen surface than on the outer side. This modified area and the humerus are impunctate, but immediately behind the former are coarse punctures with a tendency to an arrangement in longitudinal paired rows but disappearing towards the apical surface which is almost impunctate. The longitudinal rows are placed in shallow channels. *Underside*: epipleuron only narrowed towards the apex, bounded on the inner side by a sharp ridge and the outer side without such a ridge, surface with a row of large punctures from base to apex.

Secondary sexual characters. In ♂ (1) the postscutellar area is modified, (2) the last visible adominal sternite trilobed.

Length, nearly 6 mm.; *breadth*, 3·5 mm.

Distribution. BURMA: Karen Mts., v.–xii. 1888 (*Fea*); Momeik (*Doherty*). One example in the collection of the British Museum from Sadiya, Assam, shows the male modification, but the elytra is entirely brown, although the breast is piceous.

Type in the British Museum.

Genus **CYNORTA** Baly.

Cynorta Baly, Ann. Mag. Nat. Hist. (3) xvi, 1865, p. 249 ; Chapuis, Gen. Col. xi, 1875, p. 232.

GENOTYPE, *Cynorta porrecta* (Java). Fixed by Baly.

Body slender, oblong, parallel-sided, narrowed towards the apex.

Head exserted ; upper surface not very convex, finely shagreened, closely punctate ; frontal tubercles small, finely shagreened, well developed, oblique, with a median longitudinal incision ; a large area round the antennal roots is shallowly excavated, so that the clypeus is rather sharply raised ; labrum broader than long with the apex slightly emarginate ; mandibles very large, together as broad as the front of the clypeus ; maxillary palpus long, moderately slender, penultimate segment not much swollen, longer than the apical, the latter conical ; labial palpus much shorter. Eyes strongly convex. Antenna not robust, extending nearly to the apical area of elytron ; first segment long, club-shaped ; second very small, rounded ; third four or five times longer than second ; the following segments nearly equal to one another, covered with hairs a few of which are bristly. *Prothorax* quadrate, very slightly narrowing towards the base ; sides slightly undulate in front of the middle, margin sharply edged and narrowly reflexed ; each corner with a seta-bearing pore ; upper surface background shagreened, closely punctate, on each side of the middle deeply depressed, depression semilunate in form, punctures very close to each other, producing a certain rugosity. *Scutellum* small, triangular, with the apex rounded and surface convex. *Elytra* broader at base than the prothorax ; humerus raised, punctate but not rugose ; a certain basal area on each side of the scutellum convex, consequently suture immediately behind the scutellum depressed ; upper surface background shagreened, coarsely punctate, punctures by coalescing produce a rugose appearance ; they are arranged in longitudinal series, sometimes two and sometimes three or four, but these are not well defined ; in between these rows are ribs, although not well defined. *Underside* sparsely covered with fine hairs ; epipleuron narrowed behind the middle, continued to the apex, surface rugose, inner margin sharply raised throughout its whole length, outer in its apical portion only ; legs long, all femora equally thickened, tibiæ nearly equal to one another, first segment of tarsus longer than second, third bilobed, claw-segment projecting beyond the bilobed segment ; claws appendiculate.

Distribution. INDIA. BURMA. MALAY ARCHIPELAGO. SUMATRA. JAVA. BORNEO. PHILIPPINE ISLANDS.

The above description is mostly taken from the genotype.

Key to the Species.

1. Elytra ribbed and punctate-striate .... 2.
   Elytra not ribbed and punctate-striate ... 3.
2. On each elytron eight longitudinal ribs; upper side blue-green with bronzy sheen, underside blackish with metallic sheen, antennæ and legs yellowish; head without hairs; 6·5 × 2·5 mm. .... *C. sarvesha* sp. n., [p. 513.
   On each elytron ten longitudinal ribs; elytra black with faint bluish reflections; head black, with hairs; 6 × 1·25 mm. .... *C. melanocephala* Jac., [p. 514.
3. Colour pale reddish yellow-brown, in certain aspects with bluish reflections, each elytron with a long metallic dark blue patch; length about 6 mm. .... *C. apicalis* (Wiedem.), [p. 514.
   Elytra with no such coloration .... 4.
4. General colour shining pitch-brown to black, upper side, including head, pronotum and elytra, blue-green bronzy with a faint purplish sheen; 4 × 1·5 mm............. *C. subænea* Jac., p. 515.
   No such combination of characters .... 5.
5. Colour of upper surface shining violaceous blue, of underside shining pitch-brown to black; 4 × 1·5 mm. .... *C. violacea* Jac., p. 515.
   No such combination of characters .... 6.
6. General colour shining blue-green with bronzy sheen, front portion of head, antennæ and legs brown; 3 × 1·25 mm... *C. flavilabris* Jac., [p. 516.
   General colour completely brown; suture and margins all round narrowly piceous, margins of prothorax similarly coloured, scutellum from brown of the body to piceous or black; 4·5 × 2 mm. .... *C. nigrobasalis* Jac., [p. 517.

324. **Cynorta sarvesha** sp. nov.

Resembles the genotype in form and general structure. Colour of upper side blue-green with a bronzy sheen, underside blackish with a metallic sheen, legs yellowish, antenna coloured like the legs but segments from fourth or fifth blackish.

Head: upper surface with the background shagreened, punctate; frontal tubercles small, but well developed, delimited by an impressed line behind. Eyes convex but not very strongly so. Antenna slender, extending to the middle of elytron; third segment small, a little more than twice the length of second; fourth somewhat longer than third; fifth slightly shorter than fourth; from the fifth the segments are nearly equal to one another. *Prothorax* quadrate, sides convex before the middle, then narrowed in front and more gradually so towards the base; upper surface depressed across the middle, background shagreened, closely punctate, punctures not very distinctly impressed. *Scutellum* with the background of surface finely shagreened and with a few indistinct punctures on the apical area. *Elytra* : on each elytron eight longitudinal ribs, between each pair of ribs two rows of coarse punctures, which by coalescing with others produce a rugosity ; some short, erect, and very sparsely distributed hairs, which can be seen under a high magnification and in proper light. *Underside* : epipleuron narrowing towards the apex, surface rugose.

Length, 6·5 mm. ; *breadth*, 2·5 mm.

Distribution. ASSAM : Sylhet.

Type in the British Museum.

Described from three examples.

325. **Cynorta melanocephala** Jacoby.

Cynorta melanocephala Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 220.

Body rather elongate, narrow. General colour light brown, head and elytra black, faint bluish reflections on elytra, pubescent, the latter with ribs.

Head together with the eyes slightly broader than the prothorax ; upper surface finely shagreened, with some long, fine, erect, separately situated hairs ; frontal tubercles well developed, shagreened, delimited behind by a strongly impressed line, with a fine longitudinal median impression. Eyes strongly convex. Antenna slender, extending to the apex of elytron ; second segment small, rounded ; third nearly four times as long as second ; fourth very slightly longer than third ; fifth equal to third ; from the fifth the segments are nearly equal to one another. *Prothorax* subquadrate, somewhat narrowed towards the base ; sides distinctly widened before the middle ; upper surface with a shallow depression on each side of the middle, background shagreened, very sparsely and finely punctate. *Elytra* : on each elytron ten longitudinal ribs ; between each pair of ribs a double row of coarse punctures, the latter often coalescing, rims of punctures raised ; hairs moderately long, fine, backwardly directed and separately situated from each other. *Underside* : epipleuron narrowed behind the middle, surface sparsely covered with fine hairs as on the upper surface.

Length, about 6 mm. ; *breadth*, about 1·5 mm.

Distribution. BURMA : Bhamo, iv. 1886 (*Fea*).

Type in the British Museum.

326. **Cynorta apicalis** (Wiedemann).

Galleruca apicalis Wiedem., Zool. Mag. ii, 1, 1823, p. 76.
Cynorta apicalis Wiedem., Weise, Tijdschr. Ent. lxv, 1922, p. 99.

Body nearly parallel-sided, flattened. Colour pale reddish yellow-brown, in certain aspects with faint bluish reflections.

Elytral punctures vary from moderately large to fine and obsolescent ; elytra without a transverse impression behind the basal area and without longitudinal ribs ; each elytron with a long metallic dark blue patch with the exception of a narrow lateral and apical margin and a broader margin along the suture on the apical third.

Length, about 6 mm.

Distribution. Bengal.

Type in the Hamburg Museum.

I have not seen the type of this species. The above is a translation of Weise's description in German of the type-example. The elytral marking is distinctive.

327. **Cynorta subænea** Jacoby.

Cynorta subænea Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 971.

Body slender. General colour shining pitch-brown to black, upper side including head, pronotum and elytra blue-green bronzy with a faint purplish sheen.

Head together with the eyes slightly broader than the prothorax ; upper surface flat, finely shagreened ; some punctures round the eye-margin ; frontal tubercles well developed. Eyes strongly convex. Antenna slender, extending nearly to the apical area of elytron ; second segment small ; third somewhat longer than second ; fourth longer than third ; from the fourth the segments are nearly equal to one another. *Prothorax* quadrate, distinctly narrowed towards the base ; sides oblique, almost straight, finely margined ; upper surface not rugose, sparsely and finely punctate, on each side of the middle a deep depression. *Scutellum* impunctate. *Elytra* : upper surface background finely shagreened, basal convex area not very prominent, humerus convex, impunctate, plane, without rugosity or ribs, punctures on the basal area visible, elsewhere obsolescent ; on the apical margin and along the sides a few erect, scattered hairs.

Length, 4 mm. ; *breadth*, 1·5 mm.

Distribution. Burma : Karen Mts., v.–xii. 1888 (*Fea*).

Type in the British Museum.

328. **Cynorta violacea** Jacoby.

Cynorta violacea Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 970.

Body slender. Colour of upper surface shining violaceous blue and of underside shining pitch-brown to black.

Head together with the eyes somewhat broader than the prothorax ; upper surface not convex, finely shagreened ; frontal tubercles delimited by a deep transverse channel behind, with a median longitudinal channel, finely shagreened ; clypeus depressed across the middle. Eyes strongly convex.

Antenna extending to the apical area of elytron; second segment small; third nearly twice as long as second; fourth longer than third; fifth very slightly shorter than fourth; from the fifth the segments are nearly equal to one another. *Prothorax* quadrate, distinctly narrowed towards the base; upper surface with a wide depression across the middle, very finely shagreened, not rugose, very sparsely and very finely punctate. *Scutellum* impunctate. *Elytra*: upper surface with the basal convex area not very prominent, humerus prominent and impunctate, background shagreened, smooth, without longitudinal ribs, not rugose, punctures obsolescent.

Length, 4 mm.; *breadth*, 1·5 mm.

Distribution. BURMA: Karen Mts., v. xii. 1888 (*Fea*).

Type in the British Museum.

329. **Cynorta flavilabris** Jacoby.

Cynorta flavilabris Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 300.

Body small. General colour shining blue-green with a bronzy sheen, front portion of head, antennæ and legs brown.

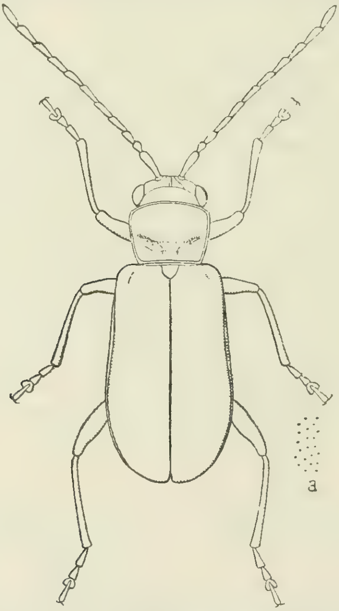

Fig. 129.—*Cynorta flavilabris* Jacoby.
a, showing distribution of elytral punctures.

Head: upper surface sparsely and finely strigose transversely and with a few scattered fine punctures; frontal tubercles well developed. Eyes not very strongly convex. Antenna not slender, somewhat stouter towards the apex; second segment small; third nearly three times as long as second, narrower towards the base and stouter towards the apex; third to seventh of similar structure; fourth longer than third; from fifth to seventh gradually but slightly diminishing in length; eighth slightly shorter than seventh; eighth to eleventh nearly equal to one another. *Prothorax* quadrate, narrowed towards the base, upper surface with a depression on each side of the middle, sparsely and finely punctate. *Scutellum* convex, very finely punctate. *Elytra*: upper surface punctate, punctures with a tendency towards longitudinal seriation on the middle area, well impressed but not very large, not coalescing, background shagreened, with a certain rugosity especially in the middle area on each side of the suture. *Underside*: epipleuron generally narrow, somewhat narrowing still more only towards the apex, surface rugose.

Length, 3 mm.; *breadth*, 1·25 mm.

Distribution. BOMBAY: Kanara (Andrewes Coll.). MADRAS: Madura (Andrewes Coll.).

Type in the British Museum.

330. **Cynorta nigrobasalis** Jacoby.

Cynorta nigrobasalis Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 400.

General colour completely brown, antenna (except two basal segments which share the body colour) blackish, suture and margins all round, in some cases more broadly at base, narrowly piceous to black, margins of prothorax similarly coloured; scutellum from brown of the body to piceous or black; tibiæ often darker brown.

Head together with the eyes slightly broader than the prothorax; upper surface finely shagreened, impunctate; frontal tubercles not strongly raised, surface shagreened, a little depression behind them in the middle. Eyes very strongly convex. Antenna slender, extending to the apex of elytron; second segment small; third nearly three times as long as second; in some aspects fourth very slightly longer than third; fifth nearly equal to third; from the fifth the segments are nearly equal to one another. *Prothorax* quadrate, narrowing towards the base but not so pronouncedly as in other species; posterior angles rounded, slightly obtuse; upper surface finely shagreened, impunctate, with a shallow depression across the middle. *Scutellum* impunctate. *Elytra*: basal convex area not very prominent; upper surface plane, without ribs or rugosity, confusedly punctate.

Underside : epipleuron narrowed behind the middle, surface smooth, inner margin raised, piceous to black.

Length, 4·5 mm. ; *breadth*, 2 mm.

Distribution. NILGIRI HILLS (Andrewes Coll.).

Type in the British Museum.

The position of this species in this genus will have to be revised in the future.

Genus **PSEUDOSCELIDA** Jacoby.

Pseudoscelida Jac., Nov. Zool. i, 1894, p. 311.

GENOTYPE, *Pseudsocelida pallida* Jac. (South-East Borneo).

Jacoby had only the one species before him when he drew up the description of the genus.

Body oblong, moderately narrow, somewhat narrowed at the apex.

Head together with the eyes broader than the prothorax ; upper surface in the Indian examples somewhat convex, in the genotype hardly convex, impunctate ; frontal tubercles not developed, with a slight depression behind ; clypeus sharply and triangularly raised ; labrum broader than long, with the front margin slightly emarginate in the middle ; maxillary palpus with the penultimate segment much thicker than the apical, which is sharply conical. Eyes very strongly convex, so large that the interocular space is very narrow, consequently the roots of antennæ are very close together. Antenna very long and slender, longer than the body ; from the third segment onwards each segment possesses, in addition to short hairs, sparsely distributed very long hairs issuing from all sides ; first segment long, club-shaped ; second small, rounded ; from the third the segments are nearly equal to one another. *Prothorax* almost quadrate ; front and hind margins almost straight ; sides somewhat rounded before the middle in the Indian species, almost straight in the genotype ; upper surface smooth, almost impunctate, or with very minute and sparsely distributed punctures, a transverse depression ; front angles slightly thickened, hind angles rounded and almost right angles, each corner with a seta-bearing pore. *Scutellum* triangular with the apex rounded and surface impunctate. *Elytra* broader at base than the prothorax ; upper surface almost impunctate in the genotype, in the Indian species background finely shagreened and finely and sparsely punctate, some punctures obsolescent. *Underside* covered with fine pubescence ; epipleuron gradually narrowed behind the middle, continued to the apex. Legs long and fairly slender ; hind tarsus longer than either the middle or front tarsus, first segment longer than second, third bilobed, claw-segment long, projecting much beyond the bilobed segment ; claws appendiculate.

Distribution. India. Sumatra. Borneo.

Key to the Species.

General colour black to shades of brown, elytra blue-green ; 6×2·5 mm.	*P. indica* Jac., p. 519.
General colour blue-green, antennæ and legs light brown ; 5×2 mm.	*P. fulvicornis* Jac., [p. 520.

331. **Pseudoscelida indica** Jacoby.

Pseudoscelida indica Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 124.

General colour shining black, elytra metallic blue-green. The black colour varies from a very dark shade to pitch-brown, all parts are not uniformly reduced to one shade, some may be darker than others, in one case the head is red-brown ; if the elytra tends towards a brownish shade the metallic sheen is not lost.

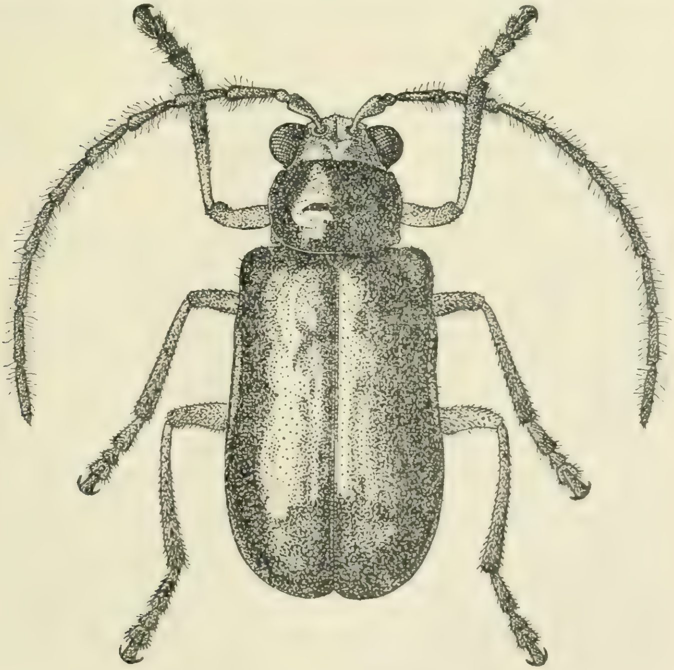

Fig. 130.—*Pseudoscelida indica* Jacoby.

Length, 6 mm.; *breadth*, 2·5 mm.; *length* of antenna, 6·5 mm.

Distribution. Nilgiri Hills (Andrewes Coll.).

Type in the British Museum.

332. **Pseudoscelida fulvicornis** Jacoby.

Pseudoscelida fulvicornis Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 124.

Resembles *indica* generally in form and structure, antenna somewhat shorter than the body. The longer hairs are fine and not as long as in *indica*. General colour shining blue-green with a bronzy sheen, antennæ and legs light brown.

Length, nearly 5 mm.; *breadth*, 2 mm.; *length* of antenna about 4 mm.

Distribution. Madras: Pondicherry.

Type in the British Museum.

It is probable that the generic position of this species may have to be changed.

Genus **SIKKIMIA** Duvivier.

Sikkimia Duviv., Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. cliv.

Genotype, *Sikkimia antennata* Duviv.

In erecting the genus Duvivier had only the one species before him.

Body oblong.

Head: interocular space with a transverse impression; frontal tubercles broad, almost plane, with a narrow but deep longitudinal impression between them; clypeus delimited from the front, surface declivous; labrum broader than long; maxillary palpus robust, with apical segment very short and bluntly conical and the penultimate strongly swollen. Eyes convex, large. Antenna extending to three-quarters of the length of the body; first segment long and thickened; second very short; tenth and eleventh modified in the male. *Prothorax* somewhat convex, with a deep and oblique impression on each side. *Scutellum* moderately large, subpentagonal. *Elytra* convex. *Underside*: epipleuron very broad at base, concave, and from the middle gradually narrowed to the apex; tibiæ without apical spine, first segment of hind tarsus as long as the two following together; claws appendiculate and divaricate.

Distribution. India.

The above description is taken from Duvivier's original in French.

Key to the Species.

[p. 521.
1. Upper side fawn-coloured ; length 9·5 mm. *S. antennata* Duviv.,
Upper side metallic blue-green with purplish reflections.......................... 2. [p. 521.
2. Legs piceous ; 6×3 mm................. *S. metallica* Jac.,
Legs bright brown ; 5·5×2·5 mm. .... *S. tamra* sp. n., p. 523.

333. **Sikkimia antennata** Duvivier.

Sikkimia antennata Duviv., Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. clv.

Body oblong-ovate. Entirely fawn in colour, lighter on the underside ; apical area of elytra testaceous ; eyes, mandibles, antennæ, tibiæ and tarsi black.

Head shining ; antenna about three-fourths the length of the body and covered with hairs ; third segment nearly twice as long as second ; fourth as long as second and third together ; the following segments to the ninth become progressively shorter ; tenth swollen, gently concave on the underside towards the apex ; eleventh as long as first, triangular, pedunculate at base, very strongly concave and very shining on the underside. *Prothorax* shining, with some punctures near the angles ; anterior angles swollen. *Elytra* finely and moderately closely punctate, and show some longitudinal nervures more numerous and pronounced towards the apex.

Length, 9·5 mm.

Secondary sexual characters. In ♂ (1) the tenth and eleventh segments of antenna are modified ; (2) the last visible abdominal segment has a triangularly depressed area.

Distribution. SIKKIM.

Type location unknown to me.

The above description is a translation of Duvivier's original in French.

334. **Sikkimia metallica** Jacoby.

Sikkimia metallica Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 122.

Body oblong, somewhat elongate, with the apex rounded.

Metallic blue-green with purplish suffusion or cupreous ; antenna brown except the basal segment which is piceous or blackish ; upper side of legs piceous, underside with a metallic tint.

Head together with the eyes as broad as the prothorax ; vertical surface impunctate ; frontal tubercles delimited behind by a short transverse impression which does not extend to the eye-margin ; labrum convex, sides and front margin in one continuous curve ; apical segment of maxillary palpus moderately long, sharply conical. Eyes large, convex. Antenna slender, extending beyond the middle of elytra; first segment long, club-shaped; second small, rounded; third three times as long as second; fourth slightly longer than third; following segments nearly equal to one another. *Prothorax* broader than long, slightly narrowed towards the base; basal margin almost straight; sides slightly sinuate, margined; front margin very widely concave; anterior lateral angles somewhat thickened and acute, posterior obtuse and each having a seta-bearing pore; upper surface smooth, finely punctate, punctures irregular, some fine and others comparatively strong; on each side of the middle a deep depression. *Scutellum* broad, triangular with the apex rounded, surface slightly convex, smooth and impunctate. *Elytra* broader at base than the prothorax; humerus convex, impunctate; postscutellar area along the suture deeply depressed; upper

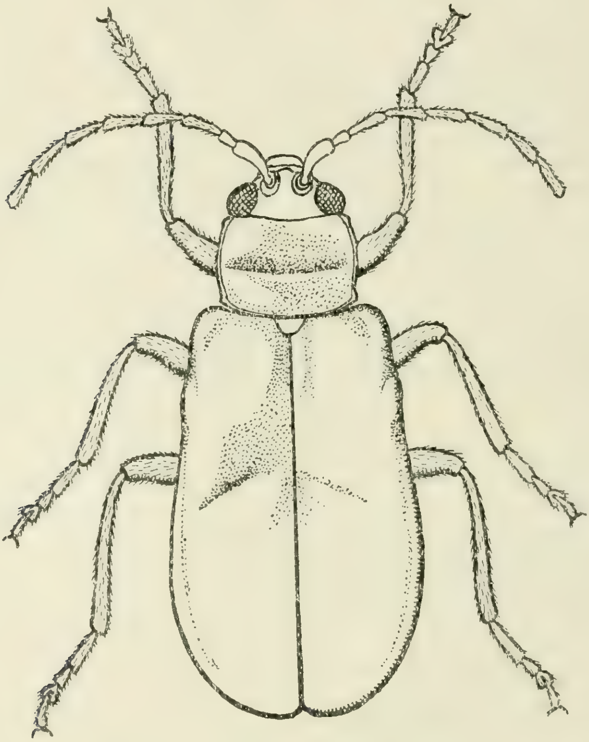

Fig. 131.—*Sikkimia metallica* Jacoby.
Three apical segments of antenna lacking.

surface fairly closely, finely but distinctly punctate. *Underside*: epipleuron not very broad at base, narrowing before the middle and continued to the apex, surface punctate; legs slender, femora slightly longer than or almost equal to corresponding tibiæ.

Length, nearly 6 mm.; *breadth*, 3 mm.

Distribution. NILGIRI HILLS (Andrewes Coll.).

Type in the British Museum.

335. **Sikkimia tamra** sp. nov.

Body oblong, not so elongate as *S. metallica* Jac.

Upper side: head, pronotum and elytra shining metallic blue-green with purplish suffusion, scutellum blue; underside dark pitch-brown with slight metallic reflections. Antennæ, mouth-parts and legs bright brown.

Head: upper surface impunctate except for a few very minute punctures, background finely and transversely striated; frontal tubercles large, flat, impunctate, with a median longitudinal impression between them and delimited by a short transversely impressed line; clypeus raised, excavated portions behind punctate and covered with whitish hairs; labrum quadrate, surface slightly convex, sides rounded, front margin emarginate; maxillary palpus with the apical segment slender, conical, and the penultimate segment swollen. Eyes large, convex. Antenna hardly extending to the middle of elytron; first segment long, club-shaped; second small, rounded; these two segments sparsely covered with hairs, remaining segments very thickly covered with whitish hairs; third, fourth and fifth thinner at base and much thickened towards the apex, almost equal to one another in length; sixth shorter than fifth but thicker, and with less difference in girth between the base and apex; seventh almost as long as sixth, with still less difference in girth between the base and apex; eighth, ninth and tenth as thick at base as at apex, eighth longer than ninth; ninth as long as seventh; ninth and tenth equal; eleventh slightly longer with pointed apex. *Prothorax* quadrate or slightly broader than long, somewhat narrowed towards the base; sides somewhat convex in the middle, sharply margined; basal border almost straight, margined; anterior lateral angles almost right angles, posterior obtuse, each having a rather large seta-bearing pore; upper surface with a deep transverse depression across the middle, irregularly but moderately closely covered with a mixture of comparatively stronger and finer punctures. *Scutellum* triangular with the apex rounded, surface slightly convex, finely and transversely striated. *Elytra* broader at base than the prothorax; convex portion of humerus with a few punctures; a certain basal area on each side of the scutellum gently convex; upper surface with the background finely shagreened, fairly closely punctate and with a certain transverse rugosity. *Underside*: epipleuron narrowed before the middle and continued very narrowly to the apex; legs slender; claws appendiculate.

Length, 5·5 mm.; *breadth*, 2·5 mm.

Distribution. Nilgiri Hills (*G. F. Hampson*).

Type in the British Museum.

Described from four examples.

I am not satisfied with the position either of this species or of *S. metallica* Jac. in this genus. When more material is available this question will have to be reconsidered.

Genus **MIMASTRA** Baly.

Mimastra Baly, Ann. Mag. Nat. Hist. (3) xvi, 1865, p. 253; Chapuis, Gen. Col. xi, 1875, pp. 178 & 179.

Anthraxantha Fairmaire, Ann. Soc. Ent. France (5) viii, 1878, p. 137; Jacoby, Proc. Zool. Soc. Lond. 1888, p. 351.

Brachita Allard, Comptes-Rendus Soc. Ent. Belg. xxxiii, 1889, p. ciii, and xxxiv, 1890, p. lxxx.

Genotype, *Mimastra arcuata* Baly. Fixed by Baly.

Body oblong, moderately elongate, sometimes slightly broadened behind and then narrowed towards the apex as in the genotype, sometimes narrow and slenderly built. Colour browns and blacks, sombre, dull, subnitid, rarely shining. The following description is taken from the type-example of the genotype.

Head as broad as the prothorax, upper surface generally shagreened, somewhat sloping in front, vertical area not convex, interocular area deeply depressed in the middle behind the frontal tubercles; latter raised but not clearly delimited either in front or behind; clypeus flattened above, area round the roots of antennæ excavated; labrum broader than long, sides straight with angles rounded, front margin rounded with a slight emargination in the middle, a few long hairs near the corners; mandibles large; maxillary palpus long, apical segment conical, penultimate longer, only moderately thickened; labial palpus very short. Eyes small, not very strongly convex. Antenna slender, extending to the apical area or in some species beyond the body; first segment longest, club-shaped; second short; third twice as long as second; fourth slightly longer than third; fourth and fifth equal; sixth slightly shorter than fifth; from the sixth to the end the segments are nearly equal to one another. *Prothorax* much broader than long; front and hind margins almost straight or slightly sinuate; sides strongly sinuate;

anterior lateral angle somewhat thickened, acute, with the seta-bearing pore large, posterior nearly right angles, rounded, with the seta-bearing pore at the apex of the angle ; upper surface generally shagreened, very uneven, with several depressions, viz., two lateral (one on each side), one basal in the middle and two shallow ones in front, one on each side of the middle line. *Scutellum* triangular with apex rounded and surface with fine transverse reticulations. *Elytra* broader at base than the prothorax ; upper surface generally shagreened, uneven, somewhat rugose, punctate, punctures indistinct, hidden by the shagreened surface ; in some species with ribs ; lateral margins somewhat explanate and reflexed. *Underside* sparsely covered with fine hairs ; epipleuron somewhat broader at base, inner edge sharply raised in the basal portion and, continuing, crosses the surface in the middle so that the flat surface of the epipleuron is gradually narrowed until it is terminated behind the middle, on the inner side of the ridge the surface is vertical. Legs long, slender ; femora and tibiæ somewhat flattened in some aspects ; tarsi long, first segment longer than the second, bilobed segment well developed, claw-segment long, projecting much beyond the bilobed segment ; claws appendiculate.

Distribution. India. Ceylon. Burma. Malay Peninsula. Indo-China. Sumatra. Java. Philippine Islands. China.

Key to the Species.

1.	Insect always more than 5 mm. in length .	2.
	Insect always less than 5 mm. in length . .	15.
2.	Elytra without distinct longitudinal ribs .	3.
	Elytra with distinct longitudinal ribs	14.
3.	Elytra with more than one colour	4.
	Elytra unicoloured	7.
4.	Elytra with a pattern having median bands	5.
	Elytra without median bands	6.
5.	A large patch on the head pitch-brown mixed with greenish-blue ; five black patches on the pronotum ; suture narrowly, margins of elytra all round more broadly and a postmedian slightly curved band on each elytron brown, rest of the elytral surface blackish mixed with bluish-green ; upper surface not shining ; 9 × 4·75 mm.	*M. arcuata* Baly, p. 527.
	A diffused patch on the head smoky ; pronotum without any patches ; the brown portions of the elytra much enlarged so that there are two dark patches on each elytron (four in all) with a faint metallic sheen ; upper surface more shining ; 7 × 3 mm.	*M. quadripartita* Baly, [p. 528.
6.	Each elytron with a large variable dark apical patch with blue-green reflections : 9·5 × 4·75 mm.	*M. cyanura* Hope, [p. 529.

Each elytron piceous with metallic bluish sheen except the basal and lateral margins and suture which are brown ; 8·5 × 4 mm.	*M. limbata* Baly, [p. 531.
7. Upper side with a clothing of fine hairs ; 8 × 4 mm.	*M. kandyensis* sp. n., [p. 531.
Upper side without a clothing of fine hairs.	8.
8. General colour black ; upper side pale fulvous, antennæ flavous with six or seven apical segments fuscous or black ; elytra with the extreme apical margins piceous ; legs flavous with a stripe on upper side of each femur, middle and hind tibiæ and all tarsi piceous ; 7 mm. long.	*M. polita* Jac., p. 532.
No such combination of characters	9.
9. Body slender, antennæ and legs very long ; general colour very pale brown, sometimes whitish, fine stripe on upper side of each femur and tibia (sometimes completely) ; head and prothorax shining, elytra subnitid ; 7·5 × 3 mm.	*M. gracilis* Baly, [p. 532.
No such combination of characters	10.
10. Body parallel-sided, apical margin truncate ; head, pronotum and elytra red-brown, antennæ dark brown with the three apical segments piceous ; legs pale yellow-brown, breast and abdomen blackish ; 6 × 3 mm.	*M. robusta* Jac., [p. 534.
No such combination of characters	11.
11. Upper surface yellow-brown, sometimes darker ; antennæ, breast and abdomen pitch-brown to blackish (sometimes portions of the abdominal sternites lighter) ; seta-bearing pores at each corner of prothorax very large ; antennæ longer than the body ; 7·5 × 3 mm.	*M. longicornis* Jac., [p. 535.
No such combination of characters	12.
12. General colour pale yellow-brown ; breast and åbdomen black with metallic bluish sheen ; antennæ extending to the apex of elytron ; 9 × 4 mm.	*M. chennelli* Baly, [p. 536.
No such combination of characters	13.
13. General colour yellow-brown ; head and pronotum shining, elytra subnitid ; legs, especially apical portions of tibiæ and tarsi, tend to be darker ; scutellum not black ; antennæ longer than the body ; 7–8·5 × 3–3·5 mm.	*M. gracilicornis* Jac., [p. 536.
Resembles *gracilicornis* ; antennæ longer than the body, stouter, segments shorter than those of *gracilicornis* ; antennæ and legs black ; scutellum, breast and abdomen piceous ; 7 × 3 mm.	*M. scutellata* Jac., [p. 537.
14. On a dark piceous background on each elytron four lighter coloured longitudinal ribs, suture and lateral margin similarly light coloured ; 9 × 4·25 mm.	*M. alternata* Jac., [p. 538.
Arrangement of ribs as in *alternata* but the background not dark piceous, sometimes principal ribs stronger ; 8–9 × 3·5–4 mm.	*M. costatipennis* Jac., [p. 539.

15.	Antenna much longer than the body	16.
	Antenna not longer than the body.......	17.
16.	Insect shining black ; each elytron with two brownish bands (median and preapical) ; elytra very minutely and indistinctly punctate ; 4·75 × 2·25 mm., length of antenna 7·5 mm.	*M. nitida* sp. n., p. 540.
	Insect light to dark brown with blackish or piceous patches on elytra ; subnitid ; elytra closely covered with well-impressed punctures ; 4·5 × 2 mm., length of antenna 6·5 mm.....................	*M. fortipunctata* [sp. n., p. 542.
17.	Insect shining pitch-brown to blackish ; body covered with short, erect hairs ; suture narrowly black ; antenna not extending beyond the body ; 3 × 1·25 mm.	*M. hirsuta* Jac., p. 543.
	No such combination of characters	18.
18.	Upper side of head posteriorly black with metallic sheen ; lateral margins of pronotum piceous ; prothorax quadrate, somewhat narrowed towards the base ; antenna as long as the body ; nearly 5 × 2 mm.	*M. capitata* Jac., p. 543.
	Upper side of head posteriorly not black ; lateral margins of pronotum not piceous ; prothorax much broader than long ; 3·5 × 1·5 mm.......................	*M. suturalis* Jac., [p. 544.

336. **Mimastra arcuata** Baly.

Mimastra arcuata Baly, Ann. Mag. Nat. Hist. (3) xvi, 1865, p. 253.

Body above not shining. General colour bright yellow-brown to dark brown with the following parts differently coloured :—Antennæ pitch-brown ; a large patch on the upper surface of the head pitch-brown mixed with greenish-blue ; five blackish patches on the pronotum : three in a group in the middle, one on each side of the longitudinal middle line and the other just behind them but on the median line, and the other two larger, lateral, one on each side near the posterior lateral corner ; scutellum shining pitch-brown ; suture narrowly, margins of elytra all round more broadly, and a postmedian slightly curved band on each elytron not quite reaching the suture (in some cases well away from the suture) share the general colour of the body, rest of the elytral surface blackish mixed with bluish-green ; breast and abdomen with both upper and under surfaces pitch-brown with blue-green sheen with purplish reflexions ; underside more shining than the upper side.

Length, 9 mm. ; *breadth*, 4·75 mm.

Distribution. Baly's type-label gives only " India." ANDAMAN ISLANDS : Baratang, 19. xii. 1903 (*G. Rogers*).

Type in the British Museum.

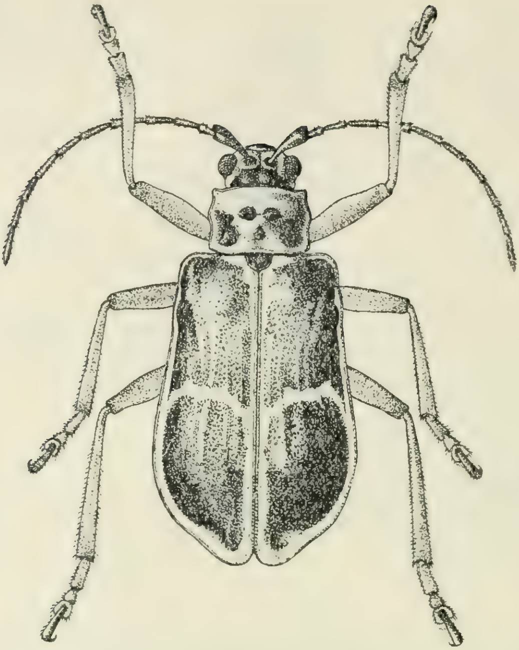

Fig. 132.—*Mimastra arcuata* Baly.

337. **Mimastra quadripartita** Baly.

Mimastra quadripartita Baly, Cist. Ent. ii, 1879, p. 448.

General colour shining brown with the following parts differently coloured :—Antennæ piceous ; a diffused patch on the vertical area of the head smoky ; scutellum and two patches on each elytron (four in all) brownish-black with a faint metallic sheen ; meso- and metasternum and abdomen brownish-black, in some specimens the abdomen shows signs of becoming much lighter ; some portions of legs piceous, especially upper sides of femora and tibiæ.

Head : upper surface smooth, shining, impunctate ; frontal tubercles well developed ; clypeus concave behind. Antenna very long and very thin, extending beyond the body ; first segment longest and thickest, the club elongate ; from the second all segments abruptly become thin ; second shortest ; third nearly three times as long as second ; fourth longer than third, somewhat bent ; fifth shorter than fourth ; fifth to eighth nearly equal to one another ; ninth slightly shorter than eighth ; ninth, tenth and eleventh equal to one another.

Prothorax broader than long, rectangular ; at each corner the seta-bearing pore thickened ; all borders narrowly margined ; upper surface with a wide depression across the middle, smooth, impunctate. *Scutellum* sharply triangular, smooth, impunctate. *Elytra* broader at base than the prothorax ; basal area on each side of the scutellum gently convex, upper surface closely punctate, punctures fine, finely shagreened, transversely rugose, one or two indistinct longitudinal ribs along the middle. *Underside* : epipleuron narrow, narrowed at some distance behind the middle, not continued to the apex. Legs very long, hind legs longer than others.

Length, 7 mm. ; *breadth*, 3 mm.

Distribution. ASSAM (type-locality), Patkai Mts. (*Doherty*).

Type in the British Museum.

338. **Mimastra cyanura** (Hope).

Auchenia cyanura Hope, in Gray, Zool. Miscell. 1831, p. 29.

Phyllobrotica lunata Koll. & Redt., in Hügel, Kaschmir und das Reich der Siek, iv, 1848, p. 556, pl. 27, fig. 3 ; Fairmaire, Ann. Soc. Ent. Belg. xxxii, 1888, p. 43.

Zeugophora cyanura Hope, Harold, Col. Hefte, xiii, 1875, p. 106.

Anthraxantha davidis Fairmaire, Ann. Soc. Ent. France, (5) viii, 1878, p. 137 ; Jac., Proc. Zool. Soc. Lond. 1888, p. 351.

Mimastra apicalis Baly, Trans. Ent. Soc. Lond. 1886, p. 28.

Mimastra cyanura Hope, Duvivier, Comptes-Rendus Soc. Ent. Belg. xxxv, 1891, p. xlvi.

Mimastra lunata Koll. & Redt., Jacoby, Ann. Soc. Ent. Belg. xxxviii, 1894, p. 198, and xl, 1896, p. 271.

Body more elongate than that of the genotype. Head, pronotum and scutellum shining, elytra subnitid. General colour pale brown with the following parts differently coloured :— The basal segments of antenna pale brown and the other segments become darker as the apex is approached till the apical segments are blackish ; posterior portion of head black with a three-branched figure on the vertical surface : two lateral branches and one median, lateral branch large, round and at one point touching the eye-margin and median branch narrow, oblong, touching the posterior end of the frontal tubercles ; these markings may undergo considerable reduction, losing connection either with the eyes or the frontal tubercles but, on the other hand, in most examples before me the black has not completely covered the area up to the eyes ; the black may have a metallic sheen. The background colour of the pronotum is light to dark brown, two lateral patches black (one on each side near and in front of the posterior corner), a group of three other obsolescent black patches in the middle situated in the shape of a triangle, but these in the specimens before me are never well developed, the lateral patches are most persistent and in the most melanic examples they cover a large area without actually staining the corner areas and in some examples send an oblique spur in front towards the middle. On each elytron a large variable dark patch with blue-green metallic sheen not covering either the lateral margins or the suture but always spreading to the apical margin: the front edge of the patch is not uniform; when considerably reduced it occupies a small apical surface and the maximum extension in the specimens before me is nearly half of the surface unless *M. limbata*, in which almost the whole of the surface is covered, is considered a variety of this species. Breast and abdomen black with a slight metallic sheen; legs with some portions (mostly around the points of articulation) brown and others blackish without any well-defined boundaries, in some cases the upper surfaces of femora and tibiæ with streaks of the dark colour, but this may be regarded as one stage in reduction of the dark colour.

Head: upper surface flattish, impunctate, a median impressed line and transverse striations; frontal tubercles stand out prominently because the surrounding area is at a lower level, smooth, impunctate; clypeus comparatively flattened. Eyes more strongly convex than in the genotype. Antenna fine, extending to the apex of elytron, first segment long, club-shaped; second short; third nearly twice as long as second; fourth much longer than third; fifth somewhat shorter than fourth; fifth to eighth nearly equal to one another; ninth somewhat shorter than eighth; ninth, tenth and eleventh nearly equal to one another. *Prothorax* not so rectangular as in the genotype, somewhat narrowed towards the base, consequently the sides are somewhat oblique, lateral margins reflexed; upper surface smooth, indistinctly punctate, sometimes distinctly, and in the latter case punctures fine and sparse, uneven with several depressions: a larger depression on each lateral area sometimes continuous across the middle, a small depression in front of the middle and one behind, sometimes these are continuous and in these shallow concavities are rugosities. The surface structure of the pronotum is variable in details although in the main features there is constancy. *Scutellum* sharply triangular, slightly convex, with a clothing of very fine hairs. *Elytra*: humerus prominent, closely rugose-punctate; in some aspects longitudinal costæ are recognizable. *Underside*: epipleuron narrowed behind the middle, disappearing towards the apex by becoming vertical.

Secondary sexual characters. In ♂ (1) the first segment of the front tarsus is enlarged and modified; (2) the last visible abdominal sternite is trilobed.

Length, 9·5 mm.; *breadth*, 4·75 mm.

Distribution. KASHMIR. NEPAL (locality of Hope's type). PUNJAB: Kulu. UNITED PROVINCES: Mussooree. MANIPUR.

BURMA : Ruby Mines (*Doherty*) ; Karen Mts. (*Fea*) ; Northern Chin Hills.

Types of *cyanura* and *apicalis* in the British Museum.

339. **Mimastra limbata** Baly.

Mimastra limbata Baly, Cist. Ent. ii, 1879, p. 449.

Resembles *M. cyanura* in form and structure but more melanic in coloration. General colour brown with the following parts differently coloured :—Antennæ blackish (except three basal segments which are brown), three patches on upper surface of head, one median and two lateral, piceous ; five patches on pronotum, a group of three in the middle (one on each side of the longitudinal middle line in front and one median behind) and the other two lateral, large, covering a considerable portion of the posterior corner surface ; scutellum piceous ; basal margin of elytra, suture and lateral margin brown, rest of surface piceous with metallic bluish sheen completely covering the apical margin ; femora, tibiæ, tarsi (except portions around the points of articulation between femora and coxæ and between femora and tibiæ) blackish with the metallic sheen, in many examples the undersides of the leg-segments have become diluted ; breast and abdomen black with faint metallic sheen.

Length, 8·5 mm. ; *breadth*, 4 mm.

Distribution. ASSAM : Khasi Hills, Gauhati, v. 1905.

340. **Mimastra kandyensis** sp. nov.

Resembles the genotype in form and structure generally but not in every detail. Body moderately broad, somewhat narrowed towards the apex. Head and pronotum very sparsely covered with fine hairs, scutellum and elytra more thickly covered with longer, erect, backwardly directed greyish hairs. General colour yellow-brown to dirty brown, breast and abdomen dark grey-brown, three apical segments of antenna and portions of legs darker brown. Head and pronotum shining, elytra subnitid.

Head : upper surface with a fine median line, sparsely punctate, punctures well impressed ; roots of antennæ nearer the eyes than each other ; in consequence, frontal tubercles transverse and clypeus flattened, broad in the inter-antennal space. Eyes strongly convex. Antenna extending to the apical area of elytron ; first segment long, club-shaped ; second short ; third nearly one and a half times as long as second ; fourth longer than third ; fifth nearly equal to third ; sixth shorter than fifth ; sixth to eleventh nearly equal to one another. *Prothorax* much broader than long, slightly narrowed towards the base; basal margin gently sinuate; sides almost straight, oblique; upper surface very uneven, depressed in front of posterior lateral angles, a transverse deep depression in front of basal margin, on each side of the middle a shallower and smaller depression, sparsely covered with well-impressed punctures; anterior seta-bearing pore large, posterior minute. *Scutellum* large, triangular, with the apex rounded. *Elytra*: upper surface closely covered with punctures, each puncture containing a hair. *Underside*: epipleuron slightly broader in the basal portion and immediately after becomes vertical and is continued to the apex, also covered with hairs. Legs not very long.

Length, 8 mm.; *breadth*, 4 mm.

Distribution. CEYLON: Kandy, ix. 1907.

Type in the British Museum.

Described from nine examples.

341. **Mimastra polita** Jacoby.

Mimastra polita Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 211.

General colour black; upper side pale fulvous, antennæ flavous with the six or seven apical segments fuscous or black; elytra with the extreme apical margin piceous; underside black except the upper part of breast and the sides of metasternum, legs flavous with a stripe on the upper sides of femora, middle and hind tibiæ and all tarsi piceous.

Head impunctate; frontal tubercles strongly raised, almost contiguous. Antenna two-thirds the length of the body, slender. *Prothorax* broader than long; sides nearly straight, slightly narrowed at base; upper surface with a central basal and transverse lateral depressions, impunctate, shining. *Elytra* narrowly elongate; very finely punctate, interstices very slightly rugulose near the suture.

Length, about 7 mm.

Distribution. TENASSERIM: Thagata, iv. 1887 (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

342. **Mimastra gracilis** Baly.

Mimastra gracilis Baly, Cist. Ent. ii, 1878, p. 378; Second Yarkand Mission, 1878, p. 32.

Body slender, antennæ and legs very long. General colour very pale brown, some specimens whitish; antenna (except the first segment which shares the body-colour) piceous; underside tends to be darker, fine stripe on upper side of each femur and tibia (sometimes not completely) black, tarsi piceous. Head and prothorax shining, elytra subnitid.

Head somewhat long, narrowed behind, upper surface large, moderately convex, impunctate, with a faint longitudinal median line, depressed behind the frontal tubercles which are well developed; clypeus strongly and abruptly raised, in this character it differs from the genotype. Antenna extending to the apex of elytron, in the male slightly longer, covered with fairly long and fine hairs; first segment very long, club-shaped; in the female second somewhat shorter than third, in the male second and third equal: fourth longer than third; fifth slightly shorter than fourth in female, almost equal in the male; sixth slightly shorter than fifth; from the sixth onwards the segments are nearly equal to one another. *Prothorax* broader than long, a depression in the middle in front of the base; very minutely, distinctly and sparsely

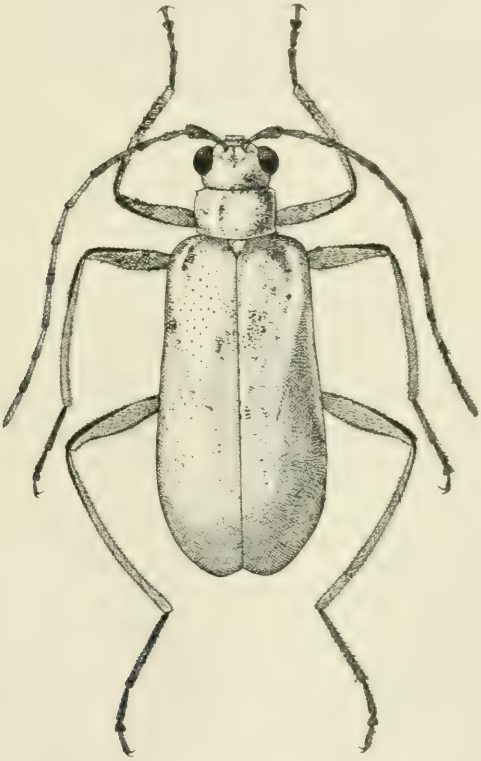

Fig. 133.—*Mimastra gracilis* Baly.

punctate. *Elytra* : surface smooth, moderately closely and confusedly punctate ; a series of stiff straight hairs along the apical margin, fewer along the lateral margin. *Underside* : epipleuron slightly broader in the basal portion and disappearing towards the apex. Hind leg longer than middle and the latter somewhat longer than front leg ; each segment of a longer leg is longer than the corresponding segment of a shorter leg ; the femora appear to be laterally flattened ; first segment of hind tarsus very long and the latter nearly four-fifths of hind tibia.

Secondary sexual characters. In ♂ (1) antennæ somewhat longer, the second and third segments equal; (2) the last visible sternite deeply emarginate in the middle.

Length, 7·5 mm. ; *breadth,* 3 mm.

Distribution. KASHGAR (type-locality). SIKKIM : Gantok, 5,000 ft., 7, 19, 31. v. 1924 (*Major R. W. G. Hingston*). TIBET : Rongshar Valley, 10,000 ft., 26. vi. 1924 (*Major R. W. G. Hingston*).

Type in the British Museum.

343 **Mimastra robusta** Jacoby.

Mimastra robusta Jac., Proc. Zool. Soc. Lond. 1887, p. 104.

Body oblong, parallel-sided, apex rounded, apical margin of each elytron truncate. Upper side of head, pronotum, scutellum and elytra red-brown ; antenna dark brown with the three apical segments piceous ; legs pale yellow-brown ; breast and abdomen blackish.

Head : upper surface moderately convex and shagreened. The antennæ are situated closer to the eyes than to each other, in consequence the frontal tubercles have become transverse and somewhat obsolescent and the clypeus broad in interantennal space and almost flattened or gently convex. This modification of the front of the head is interesting in view of the fact that the roots of antennæ are almost always close together in this subfamily ; nevertheless there is evidence to show that it is a deviation from the type-structure of this genus. Eyes strongly convex. Antenna extending nearly to the apical area of elytron ; first segment long, club-shaped ; second very short ; third nearly three times as long as second ; third to eleventh nearly equal to one another ; from the sixth the segments seem slightly thinner in some aspects ; tenth seems slightly shorter than others ; some hairs, especially on the basal segments, bristly. *Prothorax* slightly broader than long, slightly narrowed towards the base ; basal border and sides margined ; each side rounded in front of the middle ; upper surface with the background shagreened, indistinctly and sparsely punctate ; a broad concave channel across the middle. *Scutellum* broad, triangular, with the apex rounded and surface finely shagreened. *Elytra* : a certain basal area on each side of the suture gently convex ; upper surface with the background shagreened, closely covered with well-impressed punctures, the latter on each side of the suture tend to arrange themselves in longitudinal rows. *Underside* : epipleuron very broad in the basal portion, somewhat narrowed before the middle and continued fairly broadly towards the apex, in the apical area much narrower and dorsal, inner and outer margins sharp. Legs not very long.

Length, 6 mm. ; *breadth*, 3 mm.

Distribution. CEYLON : Galle on the sea coast, 27. xi.–4. xii. 1881 (*G. Lewis*).

Type in the British Museum.

344. **Mimastra longicornis** Jacoby.

Mimastra longicornis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 944.

Resembles the genotype in form and structure, body somewhat narrower and more elongate. Upper surface yellow-brown, sometimes darker ; antennæ, breast and abdomen pitch-brown to blackish, sometimes on the abdomen there are lighter portions. Head and pronotum more shining, elytra subnitid.

Head : upper surface moderately convex, smooth, impunctate ; frontal tubercles prominent, large ; clypeus raised in front, depressed behind. Antenna fine, extending a little beyond the apex of elytron, somewhat thinner towards the apex ; first segment a thickened club ; second short ; third nearly three times as long as second ; fourth longer than third ; fourth to eleventh nearly equal to one another. *Prothorax* slightly broader than long, in some aspects appears quadrate, very slightly narrowed towards the apex ; sides very slightly sinuate ; sides and basal border margined ; seta-bearing pore at each corner very large ; upper surface smooth, impunctate, deeply depressed across the middle, more so on the lateral area. *Scutellum* sharply triangular, surface transversely finely reticulated. *Elytra* : background of surface finely shagreened, slightly rugose, moderately closely covered with dark points, a few short erect hairs, more (but still sparse) on the apical and lateral areas and along the margins. *Underside* : epipleuron with the inner and outer margins sharply raised, broader at base, narrowed before the middle, continued very narrowly to the apex.

Length, 7·5 mm. ; *breadth*, 3 mm.

Distribution. BURMA : Karen Mts., v.–xii. 1888 (*Fea*).

Type in the British Museum.

345. **Mimastra chennelli** Baly.

Mimastra chennelli Baly, Cist. Ent. ii, 1879, p. 450.

General colour pale yellow-brown; from the third segment antenna blackish, tibiæ and tarsi smoky, portions of femora also smoky; breast and abdomen black with metallic bluish sheen; upper side of each femur with a fine piceous stripe.

Head: upper surface impunctate, interocular space not depressed, frontal tubercles well developed, the median impressed line continued on the vertical area. Eyes more strongly convex than in the genotype. Clypeus more raised than in the genotype. Antenna extending to the apex of elytron, no strong contrast between the thickness of the first segment and the thinness of the others; third segment twice as long as the second; fourth much longer than third; fifth shorter than fourth; from fifth to eleventh the segments are nearly equal to one another; hairs on segments very short. *Prothorax* somewhat broader than long, more quadrate in appearance than that of the genotype, in other respects similar; upper surface with deep depression in the middle, in the female the depression is not so pronounced and is laterally situated; smooth, impunctate, shining. *Scutellum* sharply triangular, smooth, impunctate. *Elytra* broader at base than the prothorax; upper surface less shining than the pronotum and scutellum; closely and rugosely covered with punctures, in some aspects indistinct longitudinal ribs are recognizable; this feature is more pronounced in some specimens than in others. *Underside*: hair-clothing thicker; epipleuron as in the genotype. In the male the first segment of the front tarsus is modified: it is enlarged, slightly convex on the upper surface, emarginate on the outer side, and on the underside with a median longitudinal ridge which, bifurcating, divides the under surface into three concave areas. The last visible abdominal sternite is trilobed, having a median concavity, with a consequent modification of the last tergite.

Secondary sexual characters. In ♂ (1) first segment of front tarsus is modified; (2) last visible abdominal sternite is trilobed.

Length, 9 mm.; *breadth*, 4 mm.

Distribution. ASSAM: from the hilly regions (*A. W. Chennell*).

Type in the British Museum.

346. **Mimastra gracilicornis** Jacoby.

Mimastra gracilicornis Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 210.

Resembles the genotype in form and structure. General colour yellow-brown, head and pronotum shining, elytra subnitid, antennæ tend to be darker towards the apex; legs, especially apical portions of tibiæ and tarsi, also tend to be darker.

Head : upper surface smooth, moderately convex, impunctate ; frontal tubercles stand out prominently as the surrounding surface is at a lower level ; clypeus flattened. Antenna long, extending a little beyond the apex of elytron ; first segment a rather thickened club ; second short ; third nearly three times as long as second ; fourth somewhat longer than third ; fifth nearly equal to fourth ; from the fifth the segments are nearly equal to one another. *Prothorax* slightly narrowed towards the base, deeply depressed across the middle, impunctate. *Elytra* confusedly and moderately closely punctate ; in some aspects faint longitudinal ribs are recognizable. *Underside* : epipleuron broader at base, both inner and outer margins sharply raised, somewhat narrowed before the middle and continued very narrowly to the apex, in the apical portion the epipleuron tends to become dorsal.

Length, 7–8·5 mm. ; *breadth*, 3–3·5 mm.

Distribution. BURMA : Bhamo, vi. 1885 (*Fea*) (type-locality); Ruby Mines (*Doherty*).

Type in the British Museum.

Among the examples from the Ruby Mines many have the legs and antennæ black, grading into piceous. In others portions of legs are brown. In the most melanic examples the general colour is very dark brown, almost reddish. The underside in no way shares the colour changes of the legs, it constantly remains brown. In the collection of the British Museum there are two examples from Belgaum, Bombay, which may be referred to this species.

347. **Mimastra scutellata** Jacoby.

Mimastra scutellata Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 395.

Resembles *M. gracilicornis* in form and structure and in general coloration, but differs in having the antennæ somewhat stouter with the segments shorter, the legs also somewhat stouter, the antennæ and legs black, breast and abdominal sternites piceous and the scutellum usually also piceous, though brown in some specimens. Apart from the somewhat different character of the antenna it is difficult to distinguish this species from *gracilicornis*. In size and distribution they resemble each other. The type-example *gracilicornis* is pale yellowish-brown and that of *scutellata* is dark red-brown with the antennæ and legs black and scutellum, breast and abdomen piceous. It is not possible to form any definite opinion about the relationship of the two type-examples from a comparison of them.

Length, 7 mm. ; *breadth*, 3 mm.

Distribution. BOMBAY: Igatpuri, 2,000 ft., vi. 1904. NILGIRI HILLS. BURMA : Taungyi, v. 1934 (*F. J. Meggitt*).

Type in the British Museum.

348. **Mimastra alternata** Jacoby.

Mimastra alternata Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 273.

Resembles the genotype in form and structure but the apex of elytra more rounded and not so narrowed as in the genotype. General colour brown, subnitid, with the following parts differently coloured :—Antennæ blackish ; frontal tubercles and three patches (often obsolescent), one median and two lateral, on the upper surface of head piceous ; five patches on pronotum, a group of three in a triangle on the central area and two lateral, one near each posterior corner, black to piceous ; on a dark piceous background on each elytron four lighter coloured longitudinal ribs, suture and lateral margin similarly light coloured, a short finer scutellar and another short intercostal basal rib (sometimes prominent) also light coloured ; breast and abdomen black ; legs brown but portions black or piceous, the coloration of legs varies in the distribution between the brown and darker colours and also in their intensity. This general colour scheme varies from a light brown example in which the blackish parts have become browner to a melanic example in which there is strong contrast between the brown and dark parts, particularly between the light colour of the elytral ribs and that of the background.

Head resembles that of the genotype in having the background shagreened, general flattened surface and small eyes. Antenna not so fine as in some species of the genus ; hair-clothing thicker ; first segment very long and club-shaped ; second short ; third nearly twice as long as second ; third and fourth nearly equal to one another ; fifth somewhat shorter than fourth ; from the fifth to eleventh the segments are nearly equal to one another. *Prothorax* somewhat broader than long, very slightly narrowed towards the apex ; each side rounded before the middle, margin reflexed ; basal margin bisinuate ; upper surface shagreened, three depressions on the central area, each containing a dark patch, and two lateral depressions, one on each side, also containing a portion of the lateral dark patch. *Scutellum* triangular, with the apex rounded and surface impunctate but finely transversely reticulate. *Elytra* : background surface shagreened, indistinctly punctate, each elytron with the following arrangement of longitudinal ribs :—A short rib from base near the scutellum anastomosing a short distance behind with the suture; the first light-coloured rib is next to but a short distance from the suture; the second is from the base close to the inner side of the humerus, meets the first on the apical area and continues as one for a short distance to the apical margin; the third and fourth, arising from behind the humerus, run parallel as far as the apical area where the latter turns inward and meets the united first and second ribs, while the third remains enclosed; the fourth rib is more strongly raised than the others, below it the surface is nearly vertical. The interstices between these ribs exhibit less strongly raised and thinner ribs. The lateral margin is sharply raised. *Underside*: epipleuron narrow, with the inner and outer margins sharp, and continued more narrowly to the apex.

Length, 9 mm.; *breadth*, 4·25 mm.

Distribution. MADRAS: Madura; Ootacamund, v. 1910 (*E. E. Green*); Nilgiri Hills.

Type in the British Museum.

349. **Mimastra costatipennis** Jacoby.

Mimastra costatipennis Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 123.

Resembles the genotype in form and structure and *M. alternata* in the arrangement of costæ on the elytra. General colour brown; antennæ piceous; three patches on head (as in *alternata* or *cyanura*) obsolescent, in some cases absent; five patches on pronotum (as in *alternata*) obsolescent; breast and abdomen blackish; legs with the tibiæ and tarsi and upper sides of femora blackish and the rest having the general colour of the body, the distribution of the lighter and darker colours on the legs varies to some extent. Sometimes the scutellum is piceous.

Head: antenna finer than in *alternata*; extending to the apex of the body; first segment very long and club-shaped; second short; third nearly three times as long as second; third, fourth and fifth nearly equal to one another (in some aspects fourth seems slightly longer); sixth shorter than fifth; from the sixth to eleventh the segments nearly equal to one another and somewhat thinner than previous segments. *Elytra*: in some cases the four principal costæ are prominent, in some cases the subsidiary as well as the principal ones are prominent. In none of the pale examples is the background colour darker so as to make the costæ stand out conspicuously. *Underside*: epipleuron somewhat broader in the basal portion and then continuing, slightly narrowly, nearly to the apex; legs very long, hind legs longer than the middle and the latter somewhat longer than the front legs.

Length, 8–9 mm.; *breadth*, 3·5–4 mm.

Distribution. NILGIRI HILLS. MALABAR.

Type in the British Museum.

350. **Mimastra nitida** sp. nov.

Body oblong, seen from above narrowing very slightly behind the shoulders and then slightly bulging, rounded at the apex. Completely shining black except the following :— Antennæ (except the basal segment which is black) and tarsi pitch-brown ; roots of antennæ bright brown ; a median band and another preapical one across each elytron light brown ; the median band is not generally large, often very slender, never actually touches the suture although reaching the lateral margin and has a slight constriction in the middle ; the preapical band has irregular margins, never, even in its fullest extent, touches either the suture or the lateral margin and often obsolescent.

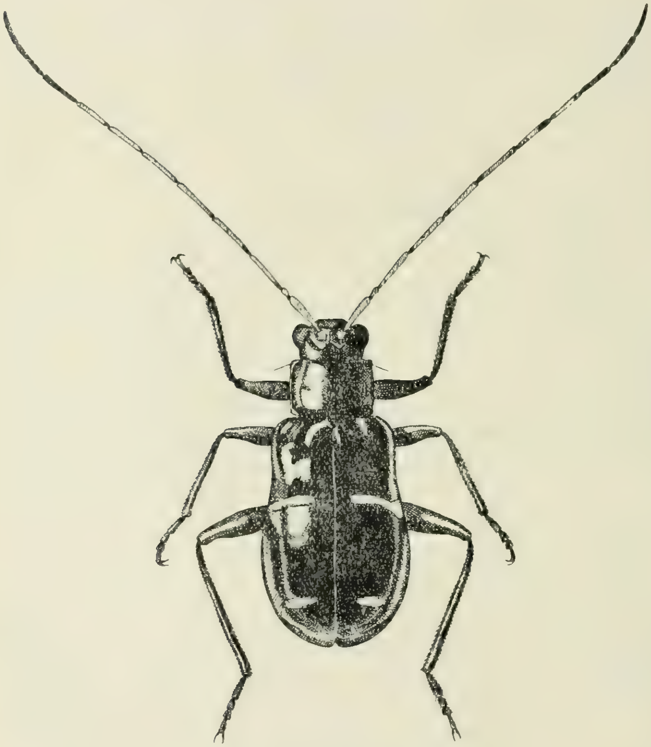

Fig. 134.—*Mimastra nitida* sp. nov.

Head : upper surface smooth, impunctate, with very fine transverse striations ; frontal tubercles stand out prominently because the surrounding surface is at a lower level, large, smooth, impunctate ; clypeus large, flat or slightly depressed, sparsely covered with fine hairs ; slightly behind the frontal tubercles but closer to the eye-margin on each side is a single large pore containing one hair. Eyes strongly convex. Antenna extending much beyond the apex of body ; first segment very long, stout and club-shaped ; rest of the segments very thin, showing a strong contrast ; second short ; third nearly five times as long as second ; third and fourth equal ; fifth slightly shorter than fourth ; fifth to ninth nearly equal to one another ; tenth somewhat shorter than ninth ; eleventh somewhat shorter than tenth ; hairs of antennæ moderately thickly distributed, short, bristly. *Prothorax* slightly broader than long ; sides and basal border sharply margined ; seta-bearing pore at each corner large ; upper surface smooth, impunctate and with shallow depressions across in front of the base and on the lateral area anteriorly and posteriorly ; one or two well-impressed punctures here and there. *Scutellum* triangular, smooth, impunctate. *Elytra* broader at base than the prothorax ; humerus prominent ; on each side of the scutellum a certain basal area gently convex ; upper surface smooth, very minutely and indistinctly punctate, on the lighter areas the punctures are easily visible but on the black surface they are not easily seen even under a high magnification ; in one example the punctures are appreciably large and crowded ; there seems to be some variation in the punctation of the elytra ; some short, erect and very sparsely distributed hairs, more easily seen on the apical areas. *Underside* sparsely covered with fine hairs ; epipleuron slanting, broader at base, narrowed at the middle and narrowly continued in a slanting manner to the apex. Hind leg extremely long, affecting the femur and tibia, but not the first segment of tarsus ; hind femur considerably thickened but without the special internal organ ; middle leg shorter than hind but somewhat longer than the front leg.

Length, 4·75 mm. ; *breadth*, 2·25 mm. ; *length* of antenna, 7·5 mm.

Distribution. EASTERN HIMALAYAS : Kurseong, 19. vi. 1910 (*N. Annandale*) ; Ghumti, vii. 1911 (*F. H. Gravely*) ; Darjeeling, 13. v. 1917 (*E. Brunetti*) ; Mahanadi, 18. vi. 1914 (*F. H. Gravely*) ; Pashok, 26. v.–14. vi. 1916 ; Sitong near Mungpu, 3,800–4,000 ft., 2–5. vii. 1918 (*S. Kemp*). BENGAL : Damukdia Ghat, 22. vii. 1907 (Ind. Mus.) ; Siliguri, 18–20. vii. 1907 (Ind. Mus.).

Type in the British Museum, *paratypes* in the Indian Museum.

Described from sixty-six examples.

351. Mimastra fortipunctata sp. nov.

Body oblong, rounded at the apex, subnitid. Head and pronotum sparsely and elytra comparatively more thickly covered with fine hairs. General colour light to dark brown with the following parts differently coloured :—Antennæ blackish ; portions of the surface behind the eyes and ill-defined areas on the pronotum piceous ; scutellum blackish ; breast and abdomen black to piceous, legs piceous with the undersides of femora brownish ; sometimes the piceous portions are much reduced, the brownish colour predominating and *vice versa.* Elytra has the following pattern of patches on a brownish background :—An elongate patch from humerus to a postbasal point, a moderately large rectangular area common to both elytra on each side of the scutellum extending posteriorly to a length equal to that of the humeral patch, a large isolated patch on each elytron surrounded on all sides by the brownish colour and extending from a postmedian to a preapical point, and an apical patch on each elytron—all blackish to piceous.

Head : upper surface impunctate except for a few punctures ; frontal tubercles large, impunctate, although raised from the surrounding area do not stand out strongly ; clypeus very sightly raised. Eyes strongly convex. Antenna extending beyond the apex of the body ; first segment very long and club-shaped ; second short ; third nearly three times as long as the second ; fourth slightly longer than third ; fifth nearly equal to third ; fifth to eighth nearly equal to one another ; ninth slightly shorter than eighth ; ninth, tenth and eleventh nearly equal to one another. *Prothorax* somewhat broader than long, slightly narrowed towards the base ; sides straight, oblique, margined ; base gently bisinuate, also margined ; each of the four corners thickened and the seta-bearing pore situated on the thickened portion, large ; upper surface smooth, impunctate, a moderately deep depression on each side of the middle. *Scutellum* with fine reticulations. *Elytra* : upper surface moderately closely covered with well-impressed punctures ; hairs erect, short, though more numerous than those of the pronotum yet sparse. *Underside* sparsely covered with fine hairs ; epipleuron broad at base, narrowed to the middle, then abruptly, considerably narrowed and continued to the apex, inner and outer margins sharp. Legs long but not so long as those of *M. nitida* ; hind legs longer than either the middle or the front legs ; posterior femur thickened but without the special internal organ, posterior tibia long but not the first segment of the tarsus.

Length, 4·5 mm. ; *breadth*, 2 mm. ; *length* of antenna, 6·5 mm.

Type in the British Museum.

Described from twenty-nine examples.

352. **Mimastra hirsuta** Jacoby.

Mimastra hirsuta Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 945.

Body small, shining and sparsely covered with fairly long and erect hairs, those on the head and pronotum sparser and shorter. General colour pitch-brown to blackish; two basal segments of antenna and legs lighter brown, although portions of leg-segments tend to become somewhat darker than light brown; suture narrowly black.

Head: upper surface moderately convex, smooth, impunctate; frontal tubercles stand out prominently because the whole of the surrounding surface is at a lower level; surface immediately behind the frontal tubercles slightly depressed; clypeus well raised. Antenna extending to the apical area of elytron; hair-clothing on antenna thick, hairs long and whitish; first segment club-shaped; second short; third nearly twice as long as second; fourth somewhat longer than third; fourth to ninth nearly equal to one another; tenth slightly shorter than ninth; tenth and eleventh nearly equal to each other. *Prothorax* slightly broader than long, somewhat narrowed towards the base; sides and basal border margined; upper surface smooth, impunctate and with a deep depression across the middle. *Scutellum* smooth, impunctate and without hairs. *Elytra*: upper surface finely rugose, indistinctly punctate, punctures very fine. *Underside*: epipleuron narrow, somewhat broader at base, inner and outer margins sharp, continued to the apex; form of legs as in the genus but not very long.

Length, 3 mm.; *breadth*, 1·25 mm.

Distribution. BURMA: Karen Mts., v.–xii. 1888 (*Fea*).

Type in the British Museum.

353. **Mimastra capitata** Jacoby.

Mimastra capitata Jac., Proc. Zool. Soc. Lond. 1887, p. 104.

Body small. Head and prothorax shining, elytra subnitid. Head behind black with greenish metallic sheen, front portion of head brown, labrum and palpi blackish, antennæ black; underside black with faint metallic sheen; general colour of upper side brown with bronzy reflections; lateral margins of pronotum, scutellum, suture, lateral margins of elytra, apical margin of elytra including a small apical area piceous; legs brown, apices of tibiæ and tarsi tend to become piceous.

Head: dark portion of upper surface finely and transversely striated and with a few well-impressed punctures; frontal tubercles well developed, smooth, impunctate, central area immediately behind depressed; clypeus raised but sloping in front. Eyes strongly convex. Antenna as long as the body ; first segment very long, club-shaped ; second very short ; third nearly four times as long as second ; third and fourth nearly equal ; fifth slightly shorter than fourth ; fifth to ninth nearly equal to one another ; tenth very slightly shorter than ninth ; tenth and eleventh nearly equal. *Prothorax* quadrate, somewhat narrowed towards the base ; sides sharply margined, reflexed ; upper surface with a deep transverse depression, smooth, and with a few scattered punctures ; background very finely shagreened. *Scutellum* triangular, with apex rounded, surface smooth and impunctate. *Elytra* : upper surface background shagreened, very closely covered with deep punctures which in some aspects present a certain rugosity. *Underside* : epipleuron somewhat broader in the basal portion, inner and outer margins sharply raised, slightly narrowed before the middle and continued narrowly to the apex ; hind tarsus very long.

Length, nearly 5 mm. ; *breadth*, 2 mm.

Distribution. CEYLON : Dikoya, 3,800–4,200 ft., 6. xii. 1881–16. i. 1882 (*G. Lewis*).

Type in the British Museum.

The two specimens are not fully developed, having been killed too soon after emergence from the pupal state.

354. **Mimastra suturalis** Jacoby.

Mimastra suturalis Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 395.

Body small. Head and pronotum shining, elytra subnitid. Head and pronotum sparsely covered with hairs, elytra more thickly and with longer ones. General colour pale brown ; head sometimes slightly darker, antennæ black except the three basal segments which share the pale body-colour ; scutellum and suture piceous, sometimes a little narrow space on each side also piceous, sometimes apical area of elytron laterally diffusedly piceous ; breast blackish.

Head : upper surface moderately convex, almost impunctate except for a few indistinct punctures, with a fine median longitudinal line ; frontal tubercles well developed ; clypeus raised. Antenna as long as the body ; first segment long and club-shaped ; second short ; third a little more than twice as long as second ; fourth longer than third ; fourth to eighth nearly equal to one another ; ninth very slightly shorter than eighth ; ninth, tenth and eleventh nearly equal to one another. *Prothorax* much broader than long ; very slightly narrowed towards the base ; sides gently rounded, finely margined ; basal border also margined but not so finely ; upper surface with a deep concave channel across, smooth and impunctate. *Scutellum* smooth and impunctate. *Elytra* rugosely and confusedly punctate. *Underside*: epipleuron somewhat broader at base, narrowed before the middle and continued narrowly to the apex, inner and outer margins sharply raised.

Length, 3·5 mm.; *breadth*, 1·5 mm.

Distribution. Nilgiri Hills (Andrewes Coll.).

Type in the British Museum.

Genus **GALLERUCIDA** Motschulsky.

Gallerucida Motsch., Étud. Ent. ix, 1860, p. 24.

Galerucida Chapuis, Gen. Col. xi, 1875, pp. 224 & 227; Harold, Stett. Ent. Zeit. xli, 1880, p. 146; Weise, Ins. Deutschl. vi, 4, 1886, p. 578, and Archiv f. Naturgesch. lxxviii, abt. A, 2, 1912, p. 90.

Melospila Baly, Journ. of Ent. i, 1861, p. 297, and Trans. Ent. Soc. Lond. 1874, p. 184.

Sphenoraia Clark, Ann. Mag. Nat. Hist. (3) xvi, 1865, p. 262; Baly, Cist. Ent. ii, 1879, p. 453; Harold, Stett. Zeit. xli, 1880, p. 146.

Genotype, *Gallerucida bifasciata* Motsch. (China, Korea, Japan).

The name of this genus should be spelt with two "l's" and not with one, as is now done, because Motschulsky, the founder of the genus, spelt it with two "l's." According to the rules no alteration can be allowed in the spelling even though the names of the subfamily and the original genus on which it was founded were spelt with one "l." In this particular case no discussion on etymology can arise, because "Galeruca," the original name, has no definite meaning.

Body oblong, stoutish, somewhat convex, fairly broad, slightly narrowing towards the apex. *Head* broad enough to be enclosed in the emargination of the anterior border of the prothorax; vertex somewhat convex; area behind frontal tubercles depressed; the latter distinct but not strongly raised; clypeus broadly raised, labrum broader than long with the front margin emarginate, covered with moderately long fine hairs, not wholly covering the mandibles; maxillary palpi long, visible from above. Base on which each eye is situated somewhat raised. Antenna stout, generally extending to about one-third the length of elytron, but sometimes almost extending to the apical area; in the genotype each of the segments from fourth to the last but one with the inner apical angle triangularly drawn out, more so in the male; first segment long, club-shaped; second and third always short, latter longer than former; fourth always longer than third; all segments covered with short pubescence except the basal three. *Prothorax* slightly broader than long; front margin widely emarginate; anterior angles thickened, sometimes drawn forwards; posterior angles obtuse; each of the four corners with a pronounced seta-bearing pore; posterior margin widely rounded; each side with a reflexed margin. *Scutellum* triangular, smooth, with apex acutely or fairly broadly rounded. *Elytra* broader at base than the prothorax; seen from above very slightly constricted behind the shoulders, seen in profile sloping down abruptly behind; shoulders impunctate; each elytron with irregular double rows of punctures arranged from base to apex; in some cases the double rows not distinct, and sometimes the punctation confused; interstices not raised, and sometimes covered with finer or coarser punctures. *Underside* sparsely covered with fine hairs, tibiæ towards the apex more thickly covered. Epipleuron somewhat narrowed towards but continued to the apex. Legs fairly long, hind legs longer than others, claws appendiculate.

Range. INDIA. JAVA. SUMATRA. JAPAN. CHINA. SIBERIA.

Key to the Speceis.

1.	Bright metallic coloration; blue, blue-green, purple-blue, purple, green, pure blue, etc.; 8·5–9 × 4·5–5 mm.	*G. rutilans* (Hope), p. 547.
	No such coloration	2.
2.	Elytra red-brown with a faint purplish sheen, prothorax metallic blue-green; 7–8 × 4·5–6 mm.	*G. amala* sp. n., p. 549.
	No such combination of colours	3.
3.	Upper surface with the head, pronotum, scutellum, suture and margins all round the elytra black, elytra and abdominal sternites yellow-brown; 7 × 4·5 mm.	*G. limbata* (Baly), p. 550.
	No such coloration	4.
4.	Shoulders lighter than the background colour of the body; on the apical surface of each elytron a group of three round spots, sometimes the apical spot absent; 7–8·5 × 4·5 × 5·5 mm.	*G. singularis* Har., p. 551.
	No such characteristics	5.
5.	Elytra confusedly punctate	6.
	Elytra with at least some evidence of longitudinal seriation	8.
6.	General colour of upper side bluish-brown, pronotum sparsely and finely punctate; 6–8 × 3·5–4 mm.	*G. nebulosa* (Gyll.), p. 552.
	General colour of upper side brown, pronotum closely and rather strongly punctate	7.
7.	Sides of prothorax rounded, anterior angles obliquely thickened; a little more than 7 mm. long	*G. duodecimmaculata*, (Jac.), p. 553.
	Sides of prothorax nearly straight, anterior angles obliquely truncate	*G. imitans* (Jac.), p. 553.
8.	Insect completely reddish-brown; elytral punctures irregularly arranged in longitudinal series; 8 mm. long	*G. indica* Harold, p. 554.

Insect not completely of one colour ; elytral punctures more regularly arranged in rows	9.
9. Each side of prothorax with a distinct convexity in front of the middle ; 8–8·5 × 4·5–5 mm.	*G. bicolor* (Hope), [p. 554.
Each side with no such convexity	10.
10. Insect larger, 7–9·5 × 4·5–5 mm. ; elytra almost black with a bluish tint	*G. flavicollis* (Clark), [p. 556.
Insect smaller ; elytra with spots and patches	11.
11. Pronotum red-brown, strongly punctate, without spots ; elytra with a large transverse median patch common to both, and with other spots also ; 5·5–6·5 × 3–4 mm.	*G. achala* sp. n., [p. 558.
Pronotum lighter brown, not strongly punctate, with spots ; elytra without a transverse median common patch	12.
12. Pronotum with two large confluent spots ; scutellum brown ; elytron with spots arranged as 1, 2, 1, ½ ; 5 × 3 mm.	*G. chunia* sp. n., p. 559.
Pronotum with two smaller round spots not confluent ; scutellum black ; elytron with spots arranged as 1, 2, 2, 1 ; 7 × 4·5 mm.	*G. chanchala* sp. n., [p. 560.

355. **Gallerucida rutilans** (Hope).

Eumolpus rutilans Hope, in Gray, Zool. Miscell. 1831, p. 30.
Chrysomela mutabilis Hope, in Gray, Zool. Miscell. 1831, p. 30.
Galleruca fulgida Kollar & Redtb., in Hügel, Kaschmir, iv, 1844, p. 554.
Sphenoraia fulgida Baly, Cist. Ent. ii, 1879, p. 454 ; Jacoby, Ann. Mus. Civ. Genova, xxvii, 1889, p. 220.
Eustetha micans Fairm., Ann. Soc. Ent. Belg. xxxii, 1888, p. 42.
Galerucida fulgida Weise, Tijdschr. Ent. lxv, 1922, p. 90.
var. *cærulescens* Weise, Tijdschr. Ent. lxv, 1922, p. 91.

A species of brilliant variable metallic colours on the upper side. Underside always metallic deep blue ; legs blackish with a blue suffusion ; antennæ dull black with brownish pubescence and also with blue suffusion ; mouth-parts generally black with edges of parts brownish, and sometimes with blue tint, hairs on mouth-parts brownish ; upper surface with the following combination of colours : (1) pronotum and scutellum deep blue, elytra deep purple, coppery, golden, with faint greenish tint, in all cases the coppery purple predominating ; (2) the blue of the pronotum much mixed with green, colour of elytra as in (1) ; (3) pronotum deep blue, elytra bright green with a purplish sheen ; (4) pronotum bright green with a faint purplish sheen, elytra with the suture and margins all round green and the rest of the surface purple but not so deep as in (1) ; (5) pronotum and elytra with same kind of green coloration, in which the purplish sheen has almost disappeared; (6) pronotum and elytra blue which is not pure, having a slight mixture of greenish and purplish, seen at certain angles; (7) pronotum and elytra deep bright pure blue. Head and scutellum in all cases share the colour of the pronotum.

Head: upper surface impunctate; frontal tubercles somewhat flattened. Antenna in the female slightly longer and in the male shorter and flatter (except the three basal segments); in the female fourth, fifth and sixth segments hardly flattened; fourth longer than fifth; fifth and sixth nearly equal; seventh slightly shorter than sixth; seventh to tenth nearly equal; eleventh slightly longer than tenth and pointed at apex. *Prothorax*: lateral margins deeply and narrowly reflexed, anterior margin near the lateral angle much thickened and rounded; upper surface convex with a slight oblique depression on each side of the median longitudinal line, sparsely and irregularly covered with a mixture of coarser and finer punctures: there is a slight variation in the sparse condition, the punctures sometimes being closer and more numerous. *Scutellum* fairly large, with the apex sharp and the surface smooth and impunctate. *Elytra*: humerus sharply convex with a few very fine punctures; lateral margins narrowly and deeply reflexed with the extreme lateral edge dorsally rounded; on each elytron about nine or ten irregular rows of punctures; there is a tendency towards the formation of double rows on the basal area, although on the apical they are single and tend to meet; punctures more strongly impressed on the basal than on the apical areas. *Underside*: epipleuron with the inner edge sharp and outer rounded and the surface scattered over with punctures.

Length, 8·5–9 mm.; *breadth*, 4·5–5 mm.

Distribution. PUNJAB: Kangra Valley (*Dudgeon*). SIMLA, vii. 1909. UNITED PROVINCES: Garhwal, Lansdowne, 5,000 ft., vi. 1929 (*R. N. Parker*); Dehra Dun; Kumaon, Bhim Tal, 19–22. ix. 1906 (*N. Annandale*). SIKKIM: Mungphu; Lebong, vii. 1909; Gopaldhara (*Atkinson*); Ging, vi. 1909; Kurseong, 23. vi. 1910 (*N. Annandale*); Kalimpong, 24. iv.–10. v. 1915 (*F. H. Gravely*). BENGAL: Buxar Duars. MANIPUR (*Doherty*). ASSAM: Sadiya; Khasi Hills, Shillong, v., vi., vii. 1918 (*Y. R. Rao*).

Type of *rutilans* in the British Museum; prothorax deep blue and elytra deep coppery purple.

Type of *mutabilis* in the British Museum; wholly blue, having the prothorax with a greenish sheen.

Location of other types unknown to me, but there is no doubt about their identity with Hope's species.

356. **Gallerucida amala** sp. nov.

Moderately broad, shining insects. Elytra and abdominal sternites dark red-brown, former with a faint purplish suffusion, latter sometimes with dark ill-defined patches; head, three basal segments of antenna, prothorax, scutellum, underside (except the abdomen) and legs dark blue-green; in most examples before me the green colour predominates, in some cases there is more blue; third to eleventh segments of antenna blackish with dark grey-brown pubescence. Often the scutellum is much diluted with brown, the elytral colour.

Head: upper surface with a few scattered minute punctures; impression between the frontal tubercles very deep, latter smooth and impunctate; hairs on the lateral areas of clypeus and on the labrum rather long. Antenna in female hardly reaching the middle of elytron, in male extending a little beyond the middle; in both sexes gradually thickened towards the apex; in male along the inner side of segments four to ten a fine, dark, smooth, sharp-looking ridge; in male third segment hardly longer than second, in female distinctly longer; in male third much thicker at the apex than at the base, three times longer than second, in female not so thickened towards the apex; in male fourth shorter than third, in female almost equal; sixth slightly shorter than fifth; sixth and seventh nearly equal; eighth shorter than seventh; eighth to eleventh nearly equal to one another, the last pointed at apex. *Prothorax*: basal margin straight with the edge rounded, a small portion of the edge towards the lateral angle oblique and reflexed; sides gently rounded with the margin more deeply reflexed; front edge at each corner thickened and somewhat expanded; upper surface gently convex with a small depression on each lateral area, sparsely covered with a mixture of finer and coarser punctures, the latter generally fewer in number; sometimes the finer punctures are very few. *Scutellum* long with the apex rounded and the surface impunctate. *Elytra*: ten rows of punctures on each elytron, including a short scutellar and extreme marginal row; the rows are irregular, crooked, and show a tendency to doubling; interspaces sparsely covered with fine punctures; lateral margin on each side narrowly but deeply reflexed. *Underside*: epipleuron rounded on the outer side and sharper on the inner side, with the surface sparsely punctate.

Length, 7–8 mm.; *breadth*, 4·5–6 mm.

Distribution. BURMA: Ruby Mines (*Doherty*).

Type in the British Museum. Described from six specimens.

In the collection of the British Museum one of these examples bears a label in Baly's handwriting, " *Sphenoraia indica*

Duvivier, ex col. Duviv." I cannot trace any reference to such a species published by Duvivier. Probably it is a MS. name.

357. **Gallerucida limbata** (Baly).

Eustetha limbata Baly, Cist. Ent. ii, 1878, p. 462; Weise, Archiv f. Naturgesch. lxxviii, abt. A, 2, 1912, p. 90.

Elytra and abdominal sternites yellow-brown; head, antennæ, prothorax, scutellum, underside, legs, suture and a narrow margin all round and a small apical area of elytra pitch-brown to black. In some cases the brown colour of the abdominal sternites is darker than that of the elytra. The black marginal colour hardly spreads beyond the reflexed structure; that on the suture, while completely staining it, hardly extends to the first row of punctures.

Head: vertex convex, with a few minute scattered punctures; depression behind the frontal tubercles deep: latter smooth, shining, impunctate: fine scattered hairs on clypeus and labrum. Eyes strongly convex. Antenna extending to about the middle of elytron: fourth segment about three times as long as third; third slightly longer than second; fifth shorter than fourth; sixth very slightly shorter than fifth; seventh almost equal to sixth; eighth shorter than seventh; eighth to eleventh nearly equal to one another, the last pointed at the apex. There is a slight difference in the sexes in the length and in the slightly thickened condition of the fifth to seventh segments. *Prothorax*: sides almost straight or very slightly curved; anterior margin on each side near the corner thickened and produced forward; posterior margin straight in the middle and at each side oblique and slightly reflexed; posterior seta-bearing pore prominent; upper surface smooth, shining, with a few very fine punctures, on each side of the middle longitudinal line two round and fairly deep depressions, these sometimes coalescing to form a long oblique excavation. *Scutellum*: surface slightly convex, impunctate, apex sharply rounded. *Elytra*: the dark stripe on each side of the suture with minute punctures, external to the suture a strongly impressed longitudinal series of punctures; scutellar row of punctures confused with the sutural row; confusedly covered with punctures which have become smaller and less strongly impressed on the dark apical area, but the arrangement in double rows can be recognized on the basal and middle areas. Each side with margin narrowly reflexed. *Underside*: epipleuron with the inner margin sharply defined, outer margin rounded and its surface with sparsely distributed minute punctures.

Length, 7 mm.; *breadth*, 4·5 mm.

Distribution. ASSAM: the plains (*A. W. Chennell*).

Type in the British Museum.

358. **Gallerucida singularis** Harold.

Galerucida singularis Harold, Stett. Ent. Zeit. xli, 1880, p. 146.

General colour shining light brown to dark reddish-brown; sometimes very shining; in the darker examples a faint purplish sheen which is almost absent in the lighter ones; legs and antennæ black; sometimes three basal segments lighter, in some examples the femora pitch-brown, in some others reddish-brown like the general body colour; labrum touched with black; lower portion of humerus and a certain apical area on each elytron yellowish; on the latter three roundish spots arranged in a triangle, the apical one sometimes obsolescent or absent, colour on the upper boundary of the lighter humeral patch deeper than body colour, sometimes black; the reddish-brown of the melanic examples is not uniform, there being darker shades in places. The humeral and apical light patches, the latter with three black spots, form a characteristic feature.

Head: the depressed area behind the frontal tubercles with longitudinal striæ; vertical area with minute punctures. Eyes strongly convex. Antenna fine, thin, long, extending a little beyond the middle of elytron; second segment somewhat shorter than third; fourth about twice as long as third; fifth shorter than fourth; sixth very slightly shorter than fifth; sixth, seventh and eighth almost equal to one another; ninth slightly shorter than eighth; ninth, tenth and eleventh almost equal, somewhat thinner, the last pointed at the apex. *Prothorax*: sides very slightly rounded; anterior angles thickened and drawn forwards; posterior angles also slightly produced; depressions on each lateral area not very deep; upper surface scattered over with strongly impressed punctures, sometimes the punctures are sparser, but there are always some in the depressions and a few elsewhere: there are also very minute and sparsely distributed punctures which vary from only a few, hardly visible, to quite an appreciable number. *Scutellum* with the apex rounded, impunctate. *Elytra*: on each elytron a short scutellar row, on each side of the suture one row, then eight rows or four irregular double rows of punctures, finally one row along the margin: in some cases the intervals between the double rows are so wide that their existence in pairs can hardly be recognized; on the interstices are many extraneous punctures, and also minute punctures which vary numerically.

Length, 7–8·5 mm.; *breadth*, 4·5–5·5 mm.

Distribution. MUNGPU. ASSAM: Sadiya (*Doherty*). BURMA: Ruby Mines (*Doherty*). It has also been taken in Tonking.

Type location unknown to me, but there are many examples in the British Museum.

359. **Gallerucida nebulosa** (Gyllenhal).

Galleruca nebulosa Gyll., in Schönherr's Synonymia Insectorum, i, 2, 1808, p. 292, pl. 4, f. 10; Weise, Horæ Soc. Ent. Ross. xxiii, 1889, p. 628.

In regard to the form of the body this species is compared with *Agelastica alni* Linn., a common European species, 6 to 8 mm. long and 3·5 to 4 mm. broad.

Head slightly but not uniformly reddish; hardly punctate with minute punctures; front between the antennæ deeply impressed. Eyes strongly convex, bluish-grey. Antenna half the length of the body; basal part reddish, towards the apex dark, pubescent, broadened, compressed, and subserrate on both sides. *Prothorax* short, transverse, crescent-shaped, anteriorly emarginate, each corner in front produced into a tooth-like structure; posteriorly rounded. Upper surface somewhat convex, sparsely and finely punctate, bluish-brown, generally with two black spots situated some distance from each other. *Scutellum* long, triangular with the apex acute, smooth, shining black. *Elytra* large, ovate with the apex rounded; much broader at base than the prothorax; depressed at base; humerus raised; bluish-brown; each elytron with irregular black spots: four along the lateral margin, fifth near the scutellum, and sometimes a sixth behind the middle near the suture, the last, however, often absent, scutellar spot sometimes dilated and almost confluent with the opposite humeral spot. Body underneath light brown, punctate, and sparsely covered with fine hairs. Legs dark brown, femora subclavate.

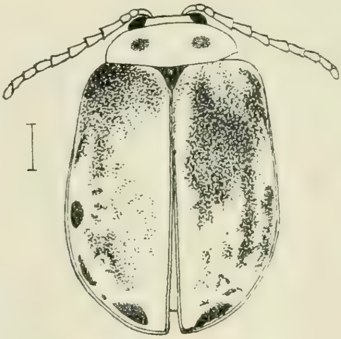

Fig. 135.—*Gallerucida nebulosa* (Gyllnh.). Drawing by Dr. I. Arwidsson from the type-example in the Uppsala University Museum.

Distribution. East Indes. Gröndal Collection.

Type in the Uppsala University Museum.

360. **Gallerucida duodecimmaculata** (Jacoby).

Sphenoraia duodecimmaculata Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 219; Weise, Archiv f. Naturgesch. lxxviii, abt. A, 2, 1912, pp. 90, 91, footnote 1.

Weise has synonymized this species with Gyllenhal's *G. nebulosa*, but in view of the disposition of spots on the upper side and other characters I do not think this opinion can be sustained. I, therefore, treat them as distinct species in this work.

Ovate, strongly convex. General colour brown; pronotum with two black round spots; each elytron with six black spots, two in a transverse line across the basal area, behind the middle area and near the apical area (2, 2, 2); antennæ brown; scutellum brown; sides of breast and base of abdominal segments black; legs brown. The spots across the middle elytral area are more transverse than in *G. nebulosa*. The colour pattern strongly resembles a variety of *G. bicolor* but differs in not having the apical spot, in the dissimilar disposition of spots, and in some points of structure.

Head with a few fine punctures; frontal tubercles and clypeus strongly raised; penultimate segment of palpi strongly thickened. Antenna with second and third segments equal, and others triangularly flattened. *Prothorax* with the sides rounded; anterior angles obliquely thickened; posterior margin strongly rounded; upper surface closely and rather strongly punctate at the sides and more sparingly on the central area; lateral surface with an obsolete depression. *Scutellum*: surface with a few punctures. *Elytra* strongly convex anteriorly, sloping down abruptly towards the apex; surface closely, strongly and entirely irregularly punctate.

Length, a little more than 7 mm.

Distribution. BURMA: Teinzo (*Fea*).

Type in the Genoa Museum.

I have not seen the type. The above description is adapted from Jacoby's original.

361. **Gallerucida imitans** (Jacoby).

Sphenoraia imitans Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 961.

Broadly ovate, convex. General colour pale brown; pronotum with two black spots; each elytron with six round black spots arranged in three pairs; antennæ brown; underside and legs brown.

Head sparingly punctate. Antenna filiform, not extending to the middle of elytron; second and third segments short, third one-half longer than second; following segments nearly equal. *Prothorax*: sides nearly straight, anterior margin strongly concave, posterior parallel ; anterior angles obliquely truncate ; upper surface strongly and confusedly punctate, more closely so on the sides than on the central area ; each lateral area with a small black spot. *Scutellum* with a few punctures. *Elytra* strongly convex, very closely, strongly and irregularly punctate ; interstices slightly rugose ; two spots across the base, two across the middle and two on the apical area, the inner of the latter pair situated a little more forward than the other.

Length, a little more than 7 mm.

Distribution. BURMA : Pegu, Palon (*Fea*).

Type in the Genoa Museum.

I have not seen the type. The above description is adapted from Jacoby's original.

This species resembles a variety of *G. bicolor* in the markings but differs in having entirely irregularly punctate elytra.

362. **Gallerucida indica** Harold.

Galerucida indica Harold, Stett, Ent. Zeit. xli, 1880, p. 146.

Red-brown ; antennæ with the exception of the first three basal segments and the root of fourth blackish ; tarsi and the apical portions of tibiæ darker.

Head uniformly convex and without a longitudinal impressed line. Antenna fine, second and third segments small. *Prothorax* smooth ; the two usual transverse impressions deep and almost contiguous in the middle ; sides entirely straight ; at each corner in front a sharp tooth directed outwards. *Elytra* finely punctate, the punctures forming irregular longitudinal rows, owing to the punctures on the interstices the rows are rendered somewhat indistinct ; the furrow on the inner side of the humerus deep and with large punctures.

Length, 8 mm.

Distribution. DARJEELING.

Type location unknown to me.

The above description is taken from Harold's original account in Latin and German.

363. **Gallerucida bicolor** (Hope).

Galleruca bicolor Hope, in Gray, Zool. Miscell. 1831, p. 29.
Sphenoraia nigripennis Clark, Ann. Mag. Mat. Hist. (3) xvi, 1865, p. 262.
Galerucida bombayana Harold, Stett. Ent. Zeit. xli, 1880, p. 147.

As is indicated below, this is a variable species of wide distribution.

General colour dark brown with black spots and patches on the upper and ventral surfaces, producing a great number of varieties, scutellum always black or piceous ; vertical area of head, labrum and antennæ (except three basal segments) always black or piceous: (1) elytra completely black, pronotum with two large round patches; (2) suture and a small apical area of elytra brown, a round black patch on humerus and one on the basal area of each elytron, then a large black patch on the rest of the elytral surface, covering the margins also, pronotum with two round spots; (3) other details remaining the same, the large patch on each elytron shows signs of breaking up into an apical and two elongate median patches, there are several examples showing intermediate states leading up to the definite separation into three patches; (4) other details remaining the same, the two elongate median patches break up into four smaller and round spots, so that in this variety there are seven spots on each elytron and two on the pronotum, altogether sixteen spots on the upper surface; (5) all basal and median elytral spots disappear so that there are only three spots on the apical area of each elytron, pronotum with two round spots; (6) all spots disappear except the apical of elytra and pronotal spots; (7) in the complete black condition of the elytra instead of the first break occurring in the basal area by the formation of the round spots the separation takes place on the apical area, while the rest of the elytral surface remains black; (8) pronotal spots disappear and basal elytral spots considerably reduced in conditions (2), (5), (6) and (7). On the underside the black markings are as follows: (1) underside completely black except the coxæ, legs (partly) and the epipleura, upper sides of femora diffusedly black: (2) completely brown, the legs brown with apical portion of femora, especially the hind ones, black. Between these two conditions, that is, from the most melanic to the lightest, there are various intermediate states; the process begins by the central longitudinal area and lateral margins of the abdominal sternites becoming lighter. No particular pattern of the upper side is constantly correlated with any particular melanic condition of the underside.

Head: the depression behind the frontal tubercles varies in depth, its surface sometimes somewhat wrinkled but always with a few scattered small punctures; frontal tubercles impunctate; clypeus with a few scattered hairs. Antenna variable in length, extending to a point a little beyond the humerus or as far as the middle of elytron; in male second segment almost equal to third, in female second shorter than third; in male along the middle line on the inner side of fourth to ninth segments a brown, smooth, hairless ridge; fourth always much longer than third; fifth shorter than fourth; sixth slightly shorter than fifth; seventh slightly shorter than sixth; seventh and eighth nearly equal; ninth, tenth and eleventh nearly equal to one another, somewhat more slender than previous segments, last pointed at apex; although the length of the antenna varies, in general the relative lengths of the segments, as stated above, hold good. *Prothorax*: each side strongly sinuate, being convex in front of the middle; upper surface with two depressions, one on each side of the longitudinal middle line, sparsely punctate, the punctures more crowded in the depressions, some of them larger and more strongly impressed than others. *Scutellum* fairly large with the apex acutely rounded and the surface impunctate. *Elytra*: each lateral margin very slightly explanate and reflexed; a scutellar row of punctures present, a row along the suture, a row of strongly impressed and large punctures along the reflexed margin; between these rows four double rows, that along the side often irregular and confused with other punctures that occur between them. The paired rows reach the apical area, on which the punctures tend to be confused. The very minute punctures on the interstices are sometimes not numerous but some always occur. Sometimes the presence of many extra punctures of the same form and size on the interstitial spaces between the rows tends to obscure the rows. *Underside*: epipleuron broad with its outer edge rounded and inner better defined, its surface with scattered punctures.

Length, 8–8·5 mm.; *breadth*, 4·5–5 mm.

Distribution. NEPAL. SIMLA, 15. vii. 1917 (Pusa Coll.). UNITED PROVINCES: Mussooree, 10. vii.–20. x. 1922 (Pusa Coll.); Dehra Dun, 7. ix. 1908; Garhwal, Lansdowne, vi. 1929 (*R. N. Parker*). KANGRA VALLEY, vi. 1899. DARJEELING: Sitong, 2–5. vii. 1918, and Pashok, 26. v.–14. vi. 1916 (Ind. Mus.). BOMBAY. WEST COAST: Mormugao, ix. 1916. MALABAR: Calicut, Palghat (on *Amorphophallus campanulatus* (Araceæ), vii. 1930. Presumably the dirty red and yellow colour and fœtid smell of this plant attract numbers of carrion flies by which it is fertilized. The occurrence of this species on this plant is therefore interesting. MAHÉ. ASSAM: Khasi Hills. LOWER BURMA: 18–30. ix. 1914 (Pusa Coll.).

Types of *bicolor* Hope and *nigripennis* Clark in the British Museum.

Location of other types unknown to me.

Although I have not seen these types, I have no doubt that they are all one and the same species.

364. **Gallerucida flavicollis** (Clark).

Sphenoraia flavicollis Clark, Ann. Mag. Nat. Hist. (3) xvi, 1865, p. 262.

General colour brown; the fourth to last segments of antenna blackish; elytra black with a slight blue tint except the following parts, which share the general brown colour:—Suture narrowly, but widening a little on the apical area, a certain small area at the apex, a very narrow margin all round including the base; scutellum brown; underside and legs also brown; surrounding a basal convex area colour faintly brown on black background.

Head: a deep depression between the frontal tubercles; last segment of maxillary palpus minute, conical, penultimate segment thickened; vertical area with a few very minute sparsely distributed punctures. Eyes strongly convex. Antenna hardly extending to the middle of elytron, somewhat thickened towards the apex: in male seventh, eighth and ninth segments excavated on the underside and thicker than others; third very slightly longer than second; fourth somewhat more than three times as long as third; fifth shorter than fourth; fifth and sixth nearly equal; seventh slightly shorter than sixth; seventh and eighth equal; in male eighth slightly shorter than seventh; ninth slightly shorter than eighth; ninth, tenth and eleventh nearly equal to one another, the last pointed at apex. *Prothorax*: sides very slightly rounded; anterior angles very slightly thickened and not drawn forwards; upper surface with the lateral area on each side containing a depression, also faintly depressed in one or two places along the median longitudinal line, sparsely covered with a mixture of strongly impressed and minute punctures, the former occurring in the depressions and on the central area. *Scutellum* sharply triangular, with the angles acute, surface impunctate. *Elytra*: the prominence of humerus is accentuated by a longitudinal impression on the inner side; each elytron with irregular rows of punctures: a scutellar row, another along the suture, five or six other rows can be counted but not with precision, interstices also sparsely covered with minute punctures, the lateral area above the margin sparsely covered with confused punctures; the impression on the inner side of humerus with rows of punctures; behind the basal area and near the suture is a shallow depression containing many confused punctures which produce an appearance of rugosity; a narrow flat area on each side of suture with a few minute punctures. *Underside*: epipleuron with the inner boundary sharp, outer rounded, surface with sparsely distributed minute punctures.

Length, 7–9·5 mm.; *breadth*, 4·5–5 mm.

Distribution. MUSSOOREE.

Type in the British Museum.

In the type-example the locality is simply "N. India." In the collection of the British Museum there are four examples, also from N. India, which resemble this species in form, size and other respects but have five spots on each elytron in varying degrees of fusion and obsolescence. In a male the excavation under the three antennal segments exists. I consider these examples to be a variety of *G. flavicollis.*

365. **Gallerucida achala** sp. nov.

Head, antennæ, underside and legs black, sometimes the abdominal sternites and legs piceous or reddish-brown; pronotum reddish-brown; scutellum black; elytra light brown with black spots and patches as follows:—A round spot on humerus but not completely covering it; across the middle of both elytra a large transverse patch covering nearly three-fourths of the width of each elytron, the patch is longer in its middle and shorter towards its ends and is narrowly continued along the suture to the scutellum, behind this patch the suture is very finely blackish to the end; on each elytron a postmedian transverse patch becoming shorter towards the lateral margin which it does not reach; on the apical area of each elytron a roundish spot; extreme lateral margin blackish except towards the apex and the base; epipleuron blackish, corresponding to the blackish portion of the margin; the length of this portion of the lateral margin and of the epipleuron varies; at the point nearer the base where the black colour begins on the lateral margin is an elytral roundish spot confluent with the margin and almost opposite to the lateral end of the transverse patch common to both elytra, sometimes a small obsolescent blackish spot at the sutural angle.

Head: upper surface with minute punctures; deeply impressed behind the frontal tubercles, the impressed portion containing elongate punctures which by coalescing produce a wrinkled appearance; mouth-parts somewhat narrowed in front, mandibles not large; frontal tubercles smooth, impunctate. The length of antenna differs in the sexes, longer in male, almost reaching the apical area, while in female extending to about the middle of the elytron; third segment very slightly longer than second; in male sixth to ninth segments larger and laterally expanded at the external apical angle; fourth nearly twice the length of third; fifth shorter than fourth; sixth very slightly shorter than fifth; sixth to eleventh nearly equal to one another; tenth and eleventh somewhat more slender, latter bluntly pointed at the apex. *Prothorax*: sides evenly but slightly rounded; anterior angles thickened, rounded, pointed at the apex but not strongly produced in front; upper surface convex with very slight depression on lateral area, with large and small but all equally strongly impressed punctures which are more crowded in the depression, on the lateral areas in front and along the extreme lateral margins, the longitudinal middle area being almost free of them. *Scutellum* with apex acute and surface impunctate. *Elytra* : six or seven very irregular longitudinal striæ including a short scutellar series ; on the lateral area the striation is almost lost ; on the basal area the punctures are more strongly impressed than on the apical ; besides these punctures there are numerous small punctures in the interstices ; lateral margin very narrowly reflexed. *Underside* : epipleuron with the inner edge sharp and outer rounded and with the surface sparsely and minutely punctate.

Length, 5·5–6·5 mm. ; *breadth*, 3·4 mm.

Distribution. BURMA : Ruby Mines (*Doherty*).

Type in the British Museum.

Described from five examples.

366. **Gallerucida chunia** sp. nov.

Head, antennæ and legs reddish ; pronotum, scutellum and elytra light brown ; a large black patch on the central area of pronotum ; on the elytra the following black patches are present :—On the suture near the apical area common to both elytra an oval patch ; besides this common patch each elytron has four large patches, (1) one covering a large basal area but not the humerus, (2) a median nearer the suture, (3) a lateral extending from behind the humeral area to about the middle of elytron, (3) an apical placed between the common patch and the lateral margin. Altogether there are nine patches on the elytra and one on the pronotum. Underside black ; epipleuron light brown, as the elytra ; femora with longitudinal blackish suffusion on the basal portion.

Head : depression behind the frontal tubercles very deep ; labrum large, almost completely covering the mandibles when viewed from above ; hairs on the clypeus and labrum long ; surface of the raised clypeus not smooth. Eyes strongly convex. Antenna extending a little beyond the basal area of elytron ; third segment slightly longer than second ; fourth a little more than twice the length of third ; fifth shorter than fourth ; sixth slightly shorter than fifth ; sixth and seventh equal ; eighth slightly shorter than seventh ; ninth slightly shorter than eighth ; ninth, tenth and eleventh nearly equal to one another, the last pointed at apex. *Prothorax* : basal margin rounded in the middle, obliquely cut away on each side behind the seta-bearing pore at each corner ; lateral margin widely rounded ; at each corner in front margin considerably thickened, the thickened portion rounded ; upper surface smooth, with a few scattered minute punctures, on each side of the longitudinal middle line situated on the black area an extremely shallow depression containing two strongly impressed large punctures. *Scutellum* with the apex acute, and surface impunctate. *Elytra* : on each elytron ten or eleven irregular rows of punctures, including a short scutellar and an extreme marginal row ; interspaces with sparsely distributed finer punctures ; owing to almost equal distance between the rows the paired character of the rows is not evident ; lateral margin hardly reflexed. *Underside* : epipleuron with the surface smooth, considerably narrowed towards the apex.

Length, 5 mm. ; *breadth*, 3 mm.

Distribution. Burma : Ruby Mines (*Doherty*).

Type in the British Museum.

Described from one example.

367. **Gallerucida chanchala** sp. nov.

General colour shining brown with reddish suffusion on the antennæ and legs ; two round black spots on pronotum, six on each elytron (1, 2, 2, 1), one on the basal area, two across middle, two across postmedian and one on the apical area ; scutellum black ; these black spots at some angles show a faint bluish tint ; underside black ; front coxæ and a certain ill-defined area on the underside of prothorax touched with black ; a broad dark red-brown stripe along the middle of the abdominal sternites ; posterior edge of each abdominal sternite also red-brown.

Head : vertex impunctate ; depression between the frontal tubercles wide. Antenna hardly extending to the middle of elytron ; third segment much longer than second ; fourth slightly longer than third ; fifth nearly equal to fourth ; sixth somewhat shorter than fifth ; seventh nearly equal to sixth ; from the seventh to the end the segments are somewhat thickened ; eighth shorter than seventh ; ninth, tenth and eleventh nearly equal to one another, the last with bluntly pointed conical end. *Prothorax* : basal margin very widely curved or almost straight ; each lateral margin uniformly rounded ; thickened and rounded near the anterior corners, but not very prominently and not drawn forwards ; upper surface convex, smooth, with some strongly impressed punctures crowded together in the shallow depression on the lateral area and also across the middle ; in the front area a few smaller punctures ; the bluish-black spot, though placed anteriorly very near a depression, does not cover it. *Scutellum* smooth, impunctate, apex not sharply acute. *Elytra* : the punctures show a tendency to form striations but it is not possible to count a definite number ; a long scutellar row distinct ; punctures large, round and strongly impressed generally, but on the apical area smaller and less strongly impressed, some punctures finer than the others; lateral edge reflexed but not conspicuously. *Underside*: epipleuron with inner edge sharper than the outer and the surface sparsely punctate.

Length, 7 mm.; *breadth*, 4·5 mm.

Distribution. BURMA: Ruby Mines (*Doherty*).

Type in the British Museum.

Described from one example.

Genus **MACRIMA** Baly.

Macrima Baly, Cist. Ent. ii, 1878, p. 377, and Second Yarkand Mission, 1878, p. 31.

GENOTYPE, *Macrima armata* Baly.

Body oblong, somewhat convex.

Head narrower than the width of the prothorax. Antennæ filiform, clothed with suberect hairs, slightly shorter than the body, the relative lengths of the second and third segments differ in the sexes. Eyes convex. Interocular space deeply excavated, the excavation differing in structure in the sexes. *Prothorax* about three times as broad as long, upper surface slightly depressed on each side of the middle. *Elytra* much broader at the base than the prothorax, almost parallel-sided, with the apex truncate, so that the broadly obtuse outer apical angle of the elytron can be recognized when viewed at a certain angle; margins very finely reflexed. *Underside*: epipleuron broad at base, then narrowly continued to the apex; legs long, slender, hind ones longer than either the front or the middle; tibia with an apical spine; the first segment of the posterior tarsi longest and about as long as the following three together; the claw-segment of the tarsi projecting much beyond the bilobed segment; claws strong, divaricate and appendiculate.

Distribution. INDIA.

368. **Macrima armata** Baly.

Macrima armata Baly, Cist. Ent. ii, 1878, p. 377, and Second Yarkand Mission, 1878, p. 31.
Sepharia frontalis Jacoby, Entomologist, xxiii, 1890, p. 254.

General colour pale brown; metasternum, external edge of the epipleuron extending to the base of elytron, scutellum, the sutural apical angles of the elytra and several basal sternites of the abdomen black. Sometimes the black colour on the abdominal sternites is absent, on the other hand there may be a touch of it on the apical sternites. The eyes may or may not be black. The mouth-parts may be touched with pitch-black.

Head with the vertex, seen under a high magnification, faintly and not very closely punctate. In the male the interocular excavation is larger and deeper ; the interantennal space is excavated and full of stiff hairs ; immediately below the root of each antenna is a very deep fossa ; a black upright structure with the apex bent forwards stands between the two deep fossæ, its bent underside being covered with golden-brown hairs ; in front of this structure is a shallower excavation, at each side of which stands a small tooth-like perpendicular projection ; anterior to the shallower excavation there are two smaller fossæ situated on each side of the longitudinal middle line. The labrum is posteriorly bounded by a deeply

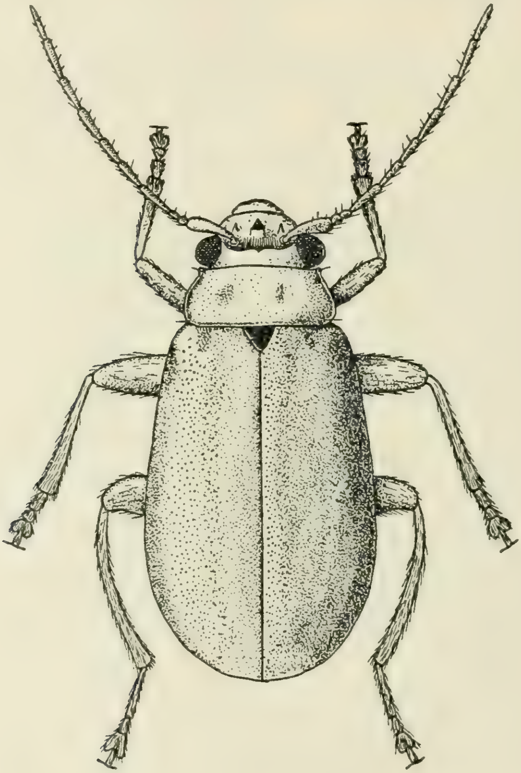

Fig. 136.—*Macrima armata* Baly.

impressed transverse line. In the female the general excavation is neither so deep nor so extensive as in the male. The two small tooth-like, laterally placed structures stand immediately below the roots of the antennæ and the central upright is very small with a bluntly rounded apex. The deeper fossæ found on the male head are absent in the female.

It is probable that the excavations and the associated structures are variable in the same sex, for in another female example before me, taken at Mussooree, the central upright is larger and the two lateral ones are also larger and apparently joined to the central one, while the general excavation is much deeper than in the female type. First segment of antenna very long and club-shaped, second and third almost equal in the male, but the latter somewhat longer than the second in the female; fourth about equal to first; from the fifth to the last the segments are about equal to each other. *Prothorax* with the sides nearly parallel and slightly sinuate behind the middle, obliquely converging from the middle to the apex; anterior angles slightly produced, obtuse; hinder angles obtusely angulate; each of the four angles bearing a fine white seta; upper surface with the lateral margins somewhat broadly reflexed, finely but not closely punctate, interspaces minutely granulose-strigose. *Scutellum* sharply triangular, smooth, shining, impunctate. *Elytra* moderately convex; confusedly punctate but more strongly and closely so than the pronotum, the punctures themselves having a paler colour. *Underside* sparsely covered with fine hairs and fairly closely punctate. In the male the last visible sternite has lateral folds, as is often the case in the males of the species of this subfamily.

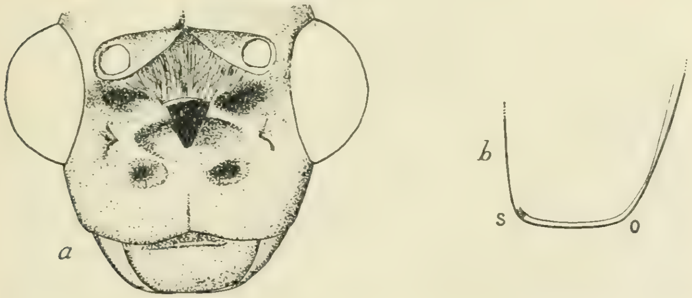

Fig. 137.—*a*. Head of *Macrima armata* Baly, ♂, front aspect greatly enlarged, showing the excavation. **b**. Right elytron seen from behind: *s*, sutural angle; *o*, outer apical angle of elytron.

Secondary sexual characters. ♂ (1) head excavation different; (2) second and third antennal segments almost equal, fourth very long; (3) last visible abdominal sternite with two lateral folds. ♀ (1) head excavation differing from that of the ♂; (2) third segment of antenna somewhat longer than second, fourth not very long; (3) last visible abdominal sternite without lateral folds.

Length, ♀ (type-example), about 7 mm.; *length* of antenna, about 6 mm.; ♂ from the apex from slightly over 7 mm.

Distribution. PUNJAB: Kulu, Jhelum Valley. KASHMIR. DARJEELING: Debrepani, 6,000 ft., 15. ix. 1929, on *Alnus nepalensis* (*J. C. M. Gardner*).

Types of *M. armata* and *S. frontalis* in the British Museum.

Genus **ACROXENA** Baly.

Acroxena Baly, Cist. Ent. ii, 1879, p. 462; Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 289.

GENOTYPE, *Acroxena nasuta* Baly. Fixed by Baly.

Body large, parallel-sided, slightly and gradually narrowing towards the apex.

Head broad, together with the eyes somewhat narrower than the prothorax; upper surface gently convex, impunctate except for a few very minute punctures; interocular space behind the roots of antennæ with a deep, transverse, impressed line which continues along the eye margin on each side; cavities in which the roots of antennæ are situated being large, the frontal tubercles have become transverse and form their posterior boundaries; clypeus sharply and transversely raised, its posterior process completely divides the frontal tubercles, meeting the transverse, impressed line behind them, its anterior portion excavated, steeply sloping, having in the middle in front two upright processes, its anterior edge sharply and deeply cut away and having in the middle a long, acute, and flattened spine; labrum large, quadrate, narrowing somewhat in front, front border emarginate, middle area somewhat concave and furnished with a tuft of erect hairs. Mandibles large, not completely covered by the large labrum. Maxillary palpus large; penultimate segment thickened; apical segment much smaller, conical, embedded on top of the penultimate one. Labial palpus also large, the three segments distinct, apical segment rather long. Eyes moderately large, not very strongly convex. Antenna robust, hardly extending to the apical area of elytron; first segment long and club-shaped; second very small and rounded; third five or six times longer than second, thickened, narrower towards the base, much wider towards the apex, slightly bulging on the underside at the apex ; fourth nearly equal to third ; from the fourth to eleventh the segments are nearly equal to one another ; eleventh with a delimited pointed apex ; fairly thickly covered with short hairs ; in the male third, fourth, fifth and sixth segments each with the under surface specialized, being flat and bounded on the inner margin by a ridge, in seventh and eighth the specialized under surface is not strongly marked though the ridge is present, in ninth the ridge is not prominent though the flatness of the under surface can still be recognized, tenth and eleventh cylindrical. *Prothorax* broader than long, narrowed towards the base, seen from above each side oblique and straight from the base to a point towards the apex whence it is rounded to the apex ; sides and base narrowly margined and reflexed ; anterior corners not thickened, small, acute, posterior obtuse, each of the four corners having a seta-bearing pore ; upper surface smooth, background finely shagreened, sparsely covered with fine and minute punctures ; sloping on each side in front ; on each side of the middle a very small and shallow depression, visible under a high magnification. *Scutellum* broad, triangular, surface smooth and impunctate. *Elytra* broader at base than the prothorax ; humerus prominent but not strongly ; confusedly and moderately closely covered with well impressed punctures ; background shagreened ; four indistinct longitudinal lines on each elytron. *Underside* covered with fine hairs, more thickly on the abdominal sternites ; epipleuron very broad at base with the inner margin sharp, narrowed before the middle and continued narrowly to the apex. Legs moderately robust, not very long ; first segment of tarsus long, second shorter, third bilobed, claw-segment long and projecting beyond the bilobed segment ; claws appendiculate.

Distribution. INDIA.

369. **Acroxena nasuta** Baly.

Acroxena nasuta Baly, Cist. Ent. ii, 1879, p. 462.

General colour shining dark brown ; underside of apex of first segment of antenna and undersides of second to seventh, *i. e.*, the specialized areas, blackish ; breast and abdominal segments piceous ; hairs on abdominal sternites greyish ; two small, rounded black spots across nearly the middle of each elytron ; sometimes these spots are obsolescent.

Secondary sexual characters. Modification of antenna (see generic description).

Length, 11·25 mm. ; *breadth*, 5 mm.

Distribution. Assam, from the hilly regions (*A. W. Chennell*).
Type in the British Museum.
The generic description is drawn up from this species.

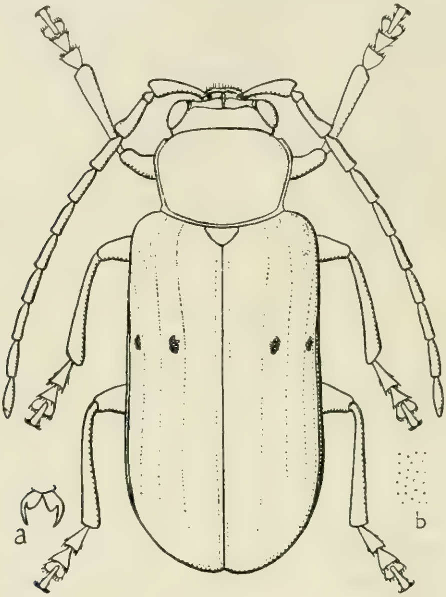

Fig. 138.—*Acroxena nasuta* Baly.
a, claws ; *b*, nature of elytral punctation.

370. **Acroxena indica** Jacoby.

Acroxena indica Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 288.

Resembles the genotype in form and structure but is a smaller species. Completely pale brown to red-brown ; in examples in which the elytra are red-brown the legs remain paler.

Head : in the male the clypeus is concave, having in its middle the following structure :—An upright process is situated near the front edge, exactly in the median longitudinal line, having a fairly long smooth base which is easily seen from one side ; this basal portion is not hairy ; on the top of this process lies in a slanting position a structure which is completely covered by short bristly hairs, narrowed and pointed in front and broadened and bifurcated behind. This is easily seen when the specimen is gradually turned from a lateral to a dorsal position. The general concave surface of the clypeus is smooth, shining and impunctate ; front margin widely emarginate with sharply raised rim. Labrum broad, distinctly narrowed behind, somewhat drawn out in the middle, this part rounded when seen from above ; sides rounded ; front widely emarginate in the middle ; upper surface somewhat convex, especially posteriorly, where there are fine punctures and short, erect hairs ; viewed sideways, below the rounded knob on the middle of the posterior end of labrum is a comparatively thinner rounded process, between this and the upper knob is a wide gap. The median upright process on the clypeus stands opposite this gap. Whatever may be the function, it seems they are associated together in it. Antenna extending to apex of body or a little beyond ; third segment with the underside wavy and apex large, squarish ; underside of fourth similar but less marked ; from third to tenth the underside of each segment specialized, bearing long erect hairs ; from the third each segment becomes gradually reduced in thickness but not to a great extent ; fourth somewhat shorter than third ; from the fourth to eleventh the segments are nearly equal to one another ; eleventh cylindrical and gradually narrowed to the apex. In the female the clypeus is gently convex and the labrum is as usual. Antenna similar to that of male in length ; second segment very small, rounded ; third about six times as long as second ; fourth somewhat shorter than third ; from the fourth to eleventh nearly equal to one another.

Secondary sexual characters. In ♂ modification of antenna, clypeus and labrum (see above).

Length, 8·25 mm. ; *breadth*, 4 mm.

Distribution. BOMBAY : Kanara (Andrewes Coll.).

Type in the British Museum.

371. **Acroxena clypeata** (Baly).

Platyxantha clypeata Baly, Journ. Linn. Soc. Lond. xx, 1888, p. 158.

Resembles the genotype in form and structure. Colour entirely brown ; in some examples the basal and apical areas of elytra are black in the following manner :—On each elytron a large basal area, nearly one-third of the elytral surface, without staining the scutellum, extreme basal margin, extreme lateral margin and suture, unites with the apical patch along each side ; the apical patch neither stains the suture nor the lateral margin. The effect of the black basal patch joining with the apical one narrowly along the sides is that a transversely elliptical brown area, somewhat produced posteriorly along the suture, is enclosed.

Head : background transversely striated, sparsely punctate surface of frontal tubercles finely granulate ; in the male the clypeus excavated in front, having a median process which lies over the middle of the posterior margin of the labrum; the latter broader than long, sides almost straight or very gently rounded, having long stout hairs along the margin, front border gently emarginate but without a fringe of hairs, upper surface moderately flat in the anterior portion and abruptly sloping down behind and having long, erect, upstanding hairs in the middle area. Eyes strongly convex. Antenna hardly extending to the apical area of elytron; second segment very small, globular; third to eighth segments gradually diminish in thickness, each having the following structure:—The segment is constricted at base near its point of articulation, gradually and imperceptibly widening towards the apex which is circular and slanting; the point of articulation of the next segment is situated eccentrically on this apical surface. Ninth, tenth and eleventh segments more cylindrical. The length of segments from the third hardly varies but sixth and seventh may seem slightly shorter. In the female the structure is similar but less marked and third, fourth and fifth segments less thick. *Prothorax*: background of surface shagreened, impunctate, very shallow depression on each side of the longitudinal middle line, visible under a high magnification. *Elytra* confusedly punctate, a basal gently convex area on each side of the scutellum; punctures behind this area more crowded together and larger, on each elytron four principal longitudinal ribs are recognizable although not pronounced, between them are fainter subsidiary ribs.

Secondary sexual characters. In ♂ the clypeus, labrum and antennæ are modified (see above).

Length, 8·25 mm.; *breadth*, 4 mm.

Distribution. ANDAMAN ISLANDS. Apparently confined to this locality.

Type in the British Museum.

Genus **PALPOXENA** Baly.

Palpoxena Baly, Journ. of Ent. i, 1861, p. 203; Chapuis, Gen. Col. xi, 1875, pp. 244 & 246.
Ænidea Baly, Trans. Ent. Soc. Lond. 1874, p. 179; Harold, Deut. Ent. Zeitschr. xxi, 1877, p. 366; Jac., Proc. Zool. Soc. Lond. 1885, p. 749.
Neochrolea Jac., Proc. Zool. Soc. Lond. 1887, p. 117, pl. xi, fig. 4.
Œnidea Baly, Journ. Linn. Soc. Lond. xx, 1888, p. 159.

GENOTYPE, *Palpoxena læta* Baly (Malacca, Borneo). Fixed by Baly.

In 1874, without giving any reason, Baly used the name *Ænidea* for the genus which in 1861 he called *Palpoxena*.

The name *Palpoxena* was not preoccupied in 1861, and therefore we must adhere to it.

Body oblong, moderately long, gradually narrowed and rounded towards the apex, often as broad at base as towards the apex. Often subnitid but sometimes shining or dull.

Head together with the eyes as broad as the prothorax, in some aspects it may look even slightly broader. Upper side not very convex, generally smooth, often with the background shagreened, and sometimes punctate; frontal tubercles transverse with some area behind them depressed; clypeus in the female convex, sometimes strongly raised behind and its posterior end embedded between the frontal tubercles; in the male (in many species) the antennæ, the clypeus, labrum and maxillary palpi have undergone extraordinary modifications. Eyes in the genotype strongly convex. Antenna always moderately slender, long, extending nearly to the apex or in some cases a little beyond; first segment always long and club-shaped; second always minute compared with the length of third; when modifications have taken place in the male the segments have a structure peculiar to the species; in the female the segments are cylindrical, covered with hairs. Maxillary palpus in the genotype long with penultimate segment enormously dilated, cup-shaped, convex on the underside and concave above, and the last segment very small, embedded slightly on one side near the apex. Labial palpus without any modification. *Prothorax* broader than long, somewhat narrowed towards the base; each side straight and oblique from the base to a point towards the apex, whence it is rounded to the apex; each corner with a seta-bearing pore, anterior ones sometimes more swollen than the posterior; sides and base generally margined and reflexed; upper surface with the background often shagreened, sometimes punctate, but never closely or coarsely so. *Scutellum* triangular with the apex rounded and the surface finely and transversely striated in the genotype. *Elytra* broader at base than the prothorax; humerus convex; often a certain basal area on each side of the scutellum gently convex; each lateral margin with sharp edge and somewhat reflexed. Upper surface generally confusedly and moderately closely punctate, sometimes very closely, and in these cases a certain rugosity can be seen; although generally confused, in some cases an arrangement towards longitudinal seriation can be seen; sometimes a ribbed condition presents itself although the ribs are not strongly developed; generally hairless, in at least one case from our regions short erect hairs are developed, and the apical area is often with a few short erect hairs. *Underside* sparsely covered with fine hairs, sometimes the abdominal sternites and the apical portions of tibiæ more thickly covered. Epipleuron continued to the apex and in the apical portion tending to become dorsal. Legs moderately slender, not very long; all legs generally nearly equal in length, the third pair may be sometimes slightly longer; first segment of the hind tarsus longer than the corresponding segment of the other two tarsi, second segment of each tarsus shorter than the previous one, third bilobed, claw segment projecting beyond the bilobed segment; claws appendiculate.

Distribution. AFRICA. INDIA. BURMA. MALAY PENINSULA. SUMATRA. BORNEO. CHINA. JAPAN.

In order not to burden the general description with details of the secondary sexual characters of the heads of males, and in order to facilitate the understanding of the structures concerned, the descriptions are presented in a comparative manner at the end of the genus under a special heading. These structures have never been studied before, nor any figures published. The special descriptions are purposely made short in this work in order to facilitate the diagnosis of the species. But it is suggested that these structures could be made the basis of an elaborate and interesting study, especially when they can be correlated with their particular function. I hope someone who has the opportunity will take up this study.

Key to the Species.

1.	Elytra with the general surface without hairs	2.
	Elytra sparsely covered with erect, stiff-looking, backwardly directed hairs; similar hairs also on the vertex of head, margins of pronotum and scutellum; 6 × 2·75 mm.	[p. 572. *P. hirtipennis* (Jac.),
2.	Elytra unicoloured	3.
	Elytra with more than one colour	27.
3.	Prothorax and elytra concolorous	4.
	Prothorax and elytra of different colours	19.
4.	Upper side blue-green or blue-green with bright bronzy sheen	5.
	Upper side not so coloured	7.
5.	Prothorax proportionately somewhat longer than broad and slightly more narrowed towards the base than in other species; apex of elytra in some aspects truncate; 7 × 3 mm.	[p. 573. *P. truncatipennis* (Jac.),
	No such combination of characters	6.
6.	In some aspects deep cupreous reflections; prothorax with the background of upper surface strongly shagreened, in general sparsely and finely punctate, each lateral sloping area in front more closely punctate, punctures fine, but some coarser ones also present; 5·5–6 × 2·5–2·75 mm.	[p. 574. *P. latifrons* (Jac.),

Prothorax with the background of upper surface finely shagreened, sparsely covered with fine punctures; 5 × 2·25 mm. ..... *P. longicornis* (Jac.), [p. 575.

7. General colour yellow-brown; breast and abdomen (except the apical segments) black; on each elytron three principal and three subsidiary shorter costæ; punctation fine, almost imperceptible; 6 mm. long. .... *P. costata* (Allard), [p. 576.

No such combination of characters ...... 8.

8. Body narrowly elongate; upper side pale brown, elytra with a slight metallic greenish sheen; underside black; about 5 mm. long. .... *P. gracilis* (Jac.), [p. 576.

No such combination of characters ...... 9.

9. Completely pale brown to whitish-yellow; 5–5·5 × 2–2·5 mm.................... *P. albicans* (Jac.), [p. 577.

No such combination of characters ...... 10.

10. Length always more than 7 mm. and breadth always more than 3 mm. ...... 11.

Measurements equal to or less than these numbers .... 12.

11. Completely shining red-brown; 7·75 × 4·25 mm. .... *P. eximia* (Baly), [p. 578.

Completely lighter to darker brown; 8·5 × 4 mm. .... *P. facialis* (Baly), [p. 578.

12. Elytra in some aspects faintly ribbed; 5 × 2·25 mm. .... *P. dilaticornis* (Jac.), [p. 580.

Elytra showing no such condition .... 13.

13. Upper side with a faint purplish sheen ... 14.

Upper side without a purplish sheen .... 16.

14. Insect large, 8·25 × 3·5 mm............. *P. indica* Jac., p. 589.

Insect always smaller than the above measurements .... 15.

15. First segment of male antenna without long, pendent hairs on the underside; 5·5 × 2·5 mm. .... *P. nasika* nom. n., [p. 581.

First segment of male antenna with long, pendent hairs on the underside; 6·5 × 2·5 mm. .... *P. nasuta* (Westwood), [p. 581.

16. Upper side dark shining brown, underside piceous, four apical segments of antenna blackish; antenna extending slightly beyond the apex of elytron, in the first segment only a slight difference between the thickness of apical and basal portions, with long hairs pendent from the underside, second also with long hairs on the underside, each of the following with two or three very long bristles at the apical angle; 6 × 2·75 mm. (known only from male) .... *P. pilicornis* (Jac.), [p. 582.

No such combination of characters ...... 17.

17. Prothorax impunctate in the middle area; 6·25 × 3 mm. .... *P. pallida* (Jac.), [p. 583.

Prothorax sparsely and finely punctate in the middle area..................... 18.

18. Body distinctly smaller and narrower, 5·5 × 2·25 mm.; antennæ extending to apex of elytron or a little beyond....... *P. modesta* (Jac.), [p. 584.

	Body larger and broader, 6·25–7 × 2·5–3 mm.; antenna extending to the middle of elytron or a little beyond	*P. rufofulva* (Jac.), [p. 584.
19.	Shining, prothorax pale brown, elytra black; 7·75 × 4 mm.	*P. barbata* (Baly), [p. 585.
	No such combination of characters	20.
20.	Prothorax greenish-black, elytra red; 6 × 2·5 mm.	*P. rufipennis* (Jac.), [p. 586.
	No such combination of characters	21.
21.	Prothorax with shades of brown, elytra with shades of blue, green or purple or a mixture of these colours; dull or shining.	22.
22.	Elytra black with a slight bluish tint, rather dull; about 6 mm. long	*P. crassipalpis* (Jac.), [p. 586.
	No such combination of characters	23.
23.	Elytra with ribs, between each pair of ribs groups of longitudinal rows, bluish-green with faint purplish reflections; 8·75 × 4 mm.	*P. viridis* (Hope), [p. 587.
	No such combination of characters	24.
24.	Elytra metallic blue or reddish or at least a trace of purplish sheen on elytra; 8·25 × 3·5 mm.	*P. indica* (Jac.), p. 589.
	No such combination of characters	25.
25.	Elytra piceous with violet sheen; sparsely covered with very fine but distinct punctures; 6·5–7 mm. × 3·25–3·5 mm.	*P. violaccipennis* (Jac.), [p. 590.
	Elytral punctures stronger, closer and with a tendency to serial arrangement	26.
26.	Elytra closely punctate with strongly impressed punctures, middle area somewhat rugose, apex in some aspects truncate, blue-green with a bronzy sheen; 7 × 3 mm.	*P. truncatipennis* (Jac.), [p. 573.
	Elytra moderately closely punctate with strongly impressed punctures, middle area not at all rugose, apex not truncate, piceous mixed with greenish-blue with purplish sheen; 6·5 × 2·5 mm.	*P. nasuta* Westwood, [p. 581.
27.	Elytra reddish-fulvous with a slight purplish sheen; basal margin, including the corresponding portion of epipleuron, metallic; about 6 mm. long	*P. bella* (Ws.), p. 590.
	Elytra rich bright brown with one-third of the apical area piceous with a bluish-purple sheen, seen at certain angles the brown portion with a violet sheen; 6·5 × 3 mm.	*P. konbirensis* (Ws.), [p. 591.

372. **Palpoxena hirtipennis** (Jacoby).

Ænidea hirtipennis Jac., Proc. Zool. Soc. Lond. 1887, p. 113.

Entirely dark brown, three or four apical segments of antenna piceous; breast blackish. In the type-example there are some irregular piceous patches on the elytra, these may be remnants of a more extensive coloration or may be accidental, probably the former. Elytra sparsely covered with erect, stiff-looking, backwardly directed hairs; similar hairs on vertex of head, margins of pronotum and scutellum.

Head: upper surface shagreened, punctate, each puncture containing a hair; frontal tubercles raised but not well defined, surface shagreened, with a fine ridge between; clypeus triangularly raised, raised portions sharp above. Eyes strongly convex. Antenna slightly shorter than the body; first segment long, club-shaped; second short; third about four times as long as second; fourth shorter than third; fifth slightly shorter than fourth; from the fifth to eleventh the segments are nearly equal to one another, with the eighth and ninth somewhat shorter and the latter slightly widened at apex; the hair-clothing of antenna sparse and among the hairs some stiff bristles occur. *Prothorax*: upper surface background finely shagreened, some indistinct fine punctures on the lateral areas in front, a broad transverse depression across the middle. *Scutellum* sharply triangular. *Elytra* slightly narrowed towards the apex; upper surface not shagreened as the pronotum, moderately closely covered with fine but well-impressed punctures, in certain aspects the surface appears ribbed. *Underside*: epipleuron only slightly narrowed before the middle, continued to the apex, inner and outer margins sharp.

Length, 6 mm.; *breadth*, 2·75 mm.

Distribution. CEYLON: Dikoya, 6. xii. 1881–16. i. 1882 (*G. Lewis*).

Type in the British Museum.

373. **Palpoxena truncatipennis** (Jacoby).

Ænidea truncatipennis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 284.
Ænidea nilgiriensis Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 403.

Colour entirely blue-green with bronzy sheen, front part of the head and antennæ piceous; on the underside the breast may be more blue than green and the legs may be of similar coloration, this condition indicates that the metallic colour is being discharged and is turning into brown. The colour may be completely brown, in this case a faint metallic sheen exists, showing its connection with blue-green metallic coloration. Intermediate between these two conditions are several states of coloration: head, prothorax, breast and legs (except apices of tibiæ, and tarsi, which are piceous) may be brown and elytra with metallic colours; in one case, everything else being equal, the prothorax is partially dark although the greater part is brown; the head, legs (except the tibiæ and tarsi) and breast partly brown, the rest with metallic coloration. The antennæ are nearly always piceous but sometimes black with portions brownish. The piceous colour of the apical portions of the tibiæ varies in extent, the tarsi being always piceous. The underside is generally not so intensely blue-green as the upper side, tending to be diluted by brownish colour.

Head: upper surface very finely shagreened, impunctate, with a small depression in the middle behind the frontal tubercles; the latter are reduced to rounded transverse strips forming the posterior boundaries of the excavation of the front portion of the head, and separated from one another by the broadened posterior part of the clypeus. Antenna not very slender, extending nearly to the apical portion of elytron; first segment long and club-shaped; second short; third widened towards the apex where it is truncate; third, fourth and fifth similar to third and nearly equal in length; sixth slightly shorter than fifth; sixth, seventh and eighth nearly equal to one another; ninth slightly shorter than eighth; ninth and tenth equal, not truncate at apex; eleventh shorter than ninth, pointed at apex. *Prothorax* proportionately somewhat longer than broad and slightly more narrowed towards the base than in other species; upper surface strongly shagreened, very sparsely and indistinctly punctate, punctures more clearly visible on the lateral areas than in the middle, widely concave behind the middle. *Scutellum* broad, apex rounded, surfaces smooth, impunctate. *Elytra* almost as broad at base as towards the apex, which in some aspects appears truncate; a certain area at base gently convex; upper surface closely punctate with strongly impressed punctures which are comparatively larger than those of other species, sometimes on the middle area is a certain rugosity, punctures tend to be arranged in longitudinal series; in some aspects surface ribbed. *Underside*: epipleuron vertical, inner and outer margins sharp, somewhat narrowed near the middle, continued to the apex where it becomes dorsal.

Length, nearly 7 mm.; *breadth*, nearly 3 mm.

Distribution. NILGIRI HILLS (Andrewes Coll.). BOMBAY: Kanara, Belgaum (Andrewes Coll.).

Types in the British Museum.

In my opinion Jacoby's types represent one and the same species.

374. **Palpoxena latifrons** (Jacoby).

Ænidea latifrons Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 402.

Body bluish-greenish bronze, in some aspects with deeper cupreous reflections; basal segment of antenna with the upper side diffusedly blackish and the rest light brown, remaining segments of antenna dark brown; legs light brown except the tarsi, which are piceous.

Head together with the eyes in some aspects somewhat broader than the prothorax; in the male the front part of the head is profoundly modified. Upper surface with the background shagreened and moderately closely covered with strongly impressed, fairly large punctures; frontal tubercles rise abruptly from the surface behind, with a fine longitudinal line between them, transversely reaching the eye-margin on each side, surface shagreened. Eyes strongly convex. Antenna very slender, extending a little beyond the apex of elytron; first segment long, broad, seen from above club-shaped, from below flattened and curved from base to apex where it is produced in a rounded knob, hair-clothing very sparse; second very small, rounded; hair-clothing on segments from third bristly and erect, but as apical segments are approached the hairs are not so erect; third nearly equal to fourth, middle portion constricted, knobby at the ends; fifth very slightly shorter than fourth; from the fifth to eleventh the segments are nearly equal, in some aspects they appear to vary a little; tenth and eleventh somewhat broadened. *Prothorax*: upper surface background strongly shagreened, a transverse broad channel across the middle ending on each side in a deep depression not reaching the lateral margin; in the median channel a few fine punctures, elsewhere sparsely and finely punctate, on each lateral sloping area in front more closely punctate, punctures fine but mixed with some coarser ones. *Scutellum*: surface finely shagreened with a few fine and indistinct punctures. *Elytra* almost as broad at base as at apex; upper surface background strongly shagreened, moderately closely covered with not very fine punctures which are not so well impressed as those on the head; two depressions on each elytron, one behind the basal convex area and the other behind the middle. In certain aspects the surface appears to be ribbed. *Underside*: epipleuron narrowed towards apex only, surface shagreened, inner margin sharp. Legs longish, slender.

Length, 5·5–6 mm.; *breadth*, 2·5–2·75 mm.

Distribution. ANAMALAIS, v. (Andrewes Coll.).

Type in the British Museum.

375. **Palpoxena longicornis** (Jacoby).

Ænidea longicornis Jac., Stett. Ent. Zeit. lvi, 1895, p. 74.

Body bluish-green with bronzy sheen; modified front part of head black, antennæ dark brown with the basal three or four segments somewhat lighter; legs light brown.

Head: upper surface finely shagreened, impunctate except for a few very fine punctures. The front part of the head is profoundly modified in the male. Antenna not very fine, extending to the apex of elytron; first segment stout, not club-shaped, not very long, seen from front somewhat flattened, laterally convex on the inner side, gently concave from base to apex, without hairs ; second very small, rounded ; third long, slightly bent in the middle ; fourth shorter than third, narrowed towards the base, gradually thickened towards the apex which is truncate ; from fourth to eleventh the segments are nearly equal in length, each of fourth to tenth segments truncate at apex, eleventh pointed at apex ; the hair-clothing consists of short, bristly, erect hairs. *Prothorax* : upper surface background finely shagreened, sparsely covered with fine punctures, on each side of the middle a deep depression. *Scutellum* : surface finely shagreened. *Elytra* almost as broad at base as towards the apex ; a certain basal area on each elytron somewhat convex ; upper surface background shagreened ; moderately closely covered with fine but well-impressed punctures. *Underside* : epipleuron with the surface flat, somewhat narrowed behind the middle, inner margin sharp. Legs somewhat slender.

Length, 5 mm. ; *breadth,* 2·25 mm.

Distribution. MADRAS : Madura (Andrewes Coll.).

Type in the British Museum.

376. **Palpoxena costata** (Allard).

Xenarthra costata Allard, Comptes-Rendus Soc. Ent. Belg. xxxiii, 1889, p. cxv.

Platyxantha novemcostata, Allard, Weise, in Junk & Schenkling, Coleop. Cat. pt. 78, 1924, p. 157.

General colour yellow-brown ; breast and abdomen (except the apical segments) black ; antennæ and legs yellow.

On each elytron Allard describes three principal costæ and three subsidiary shorter ones. The punctation is fine and almost imperceptible.

Length, 6 mm.

Distribution. MUSSOOREE.

Weise erroneously records *novemcostata* as the name of the species, thinking that the number nine against the species in Allard's key was meant to refer to the number of costæ, whereas it really denoted the number of the species in the key.

I have not seen this species. Its position should be regarded as doubtful.

377. **Palpoxena gracilis** (Jacoby).

Platyxantha gracilis Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 234.

Body narrowly elongate. Upper side pale brown, underside black ; two or three basal segments of antenna brown, the rest black ; elytra with a slight metallic greenish sheen ; apices of tibiæ and tarsi piceous.

Head: upper side convex, impunctate. In the male the front portion of the head profoundly modified. Antenna nearly as long as the body, filiform; first segment swollen, cup-shaped; second short; third somewhat longer than each of the following segments. *Prothorax* about one half broader than long; sides narrowed at base, strongly rounded at the middle; anterior angles acute; upper surface with a deep depression at each side and a more shallow one at the middle near the anterior margin (this depression may be accidental), impunctate. *Elytra*: upper surface very finely punctate; punctures tend to be arranged in double rows, traces of longitudinal fine lines. *Underside*: epipleuron continued behind the middle. Tibia of middle leg with a narrow, elongate appendage near the apex.

Length, about 5 mm.

Distribution. BURMA: Bhamo, Teinzo, iv. & v. 1885–86 (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English. He did not think this species suitably belonged to the genus *Platyxantha*, owing to the filiform nature of antenna and to the rather more transverse character of prothorax. Judging from the description it is convenient for our present purpose to include it in the present genus.

378. **Palpoxena albicans** (Jacoby).

Macrima albicans Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 134.

Completely pale brown to whitish-yellow; in the type-example there are indistinct dark brown markings on the head, pronotum and elytra. Eyes black.

Head: upper surface very finely shagreened or with very fine transverse striations, impunctate; frontal tubercles raised, a median longitudinal channel and a transverse one along their posterior margin, surface shagreened; clypeus somewhat concave. Eyes strongly convex. Antenna not very slender, extending nearly to the apical area of elytron; first segment long, club-shaped; second very small, rounded; third slightly shorter than first and about equal to fourth, from the sixth to eleventh each segment appears to be slightly shorter than fifth and nearly equal to one another. *Prothorax*: upper surface background finely shagreened, a shallow depression across the middle, sparsely and finely punctate, punctures on the lateral sloping areas in front more crowded, with one or two comparatively larger ones. *Scutellum*: surface smooth, impunctate. *Elytra* almost as broad at base as towards the apex; upper surface background finely shagreened, closely punctate, punctures well impressed, comparatively large. *Underside*: epipleuron narrowed behind the middle, continued to the apex, inner and outer margins sharp.

Length, 5–5·5 mm. ; *breadth*, 2–2·5 mm.

Distribution. BENGAL : Mandar (*Père Cardon*).

Type in the British Museum.

This species should not be placed in *Macrima* because it lacks the apical character of the elytra of that genus. In my opinion it can suitably be placed in this genus. Jacoby should not have described this species from the two specimens then available because they were killed too soon after they had emerged from the pupal state.

379. **Palpoxena eximia** (Baly).

Ænidea eximia Baly, Cist. Ent. ii, 1879, p. 464.

Completely shining red-brown.

Head: upper surface impunctate; frontal tubercles transverse, completely separated from each other ; the front part of head has undergone profound modification. Eyes strongly convex. Antenna extending slightly beyond the apex of elytron ; first segment very stout, underside of the base concave, and of the club swollen with pendent hairs ; second minute, globular ; third very long, somewhat bent ; fourth slightly shorter than third ; fifth slightly shorter than fourth ; fifth, sixth and seventh nearly equal to each other ; eighth slightly shorter than seventh ; ninth slightly shorter than eighth ; seventh, eighth and ninth somewhat flattened, dorso-ventrally bent and a little produced apically. *Prothorax*: upper surface with a large transverse depression across the middle, smooth, very sparsely covered with fine punctures, more crowded on each side of the front area. *Elytra* almost as broad at base as at apex ; upper surface with the background finely shagreened, moderately closely covered with fine but well-impressed punctures. *Underside*: epipleuron not broader at base, somewhat broader post-basally, hardly narrowed to the apex, inner margin sharp.

Length, 7·75 mm. ; *breadth*, 4·25 mm.

Distribution. ASSAM : from the plains (*A. W. Chennell*).

Type in the British Museum.

380. **Palpoxena facialis** (Baly).

Ænidea facialis Baly, Journ. Linn. Soc. Lond. xx, 1886, p. 27.
Neochrolea cavifrons Jac., Proc. Zool. Soc. Lond. 1887, p. 117.

Entirely brown, varying from a somewhat lighter to a darker shade ; one black spot on each humerus and two spots on a transverse postmedian line, these elytral spots may be obsolescent or may even altogether disappear.

Head: in the male the front part is profoundly modified; in the female the clypeus is convex, produced behind in the interantennal space dividing the frontal tubercles; the labrum is broader than long with sides rounded and the front margin slightly emarginate in the middle. Upper surface impunctate; frontal tubercles transverse with a deep channel behind not extending to the eye-margins. Antenna in the male slightly longer than the body, in the female hardly extending to the apical area; in the male the basal portion of the first segment somewhat flattened, third with the apical two-thirds concave on the underside and much longer than fourth, each segment from the fourth to eleventh (except the pointed apex) with a fine ridge along the inner margin and nearly equal to one another in length, although the three apical segments are slightly thinner; in the female segments without the ridge, the first segment cylindrical at the base, third cylindrical and not concave on the underside as in the male, fourth somewhat shorter than third and nearly equal

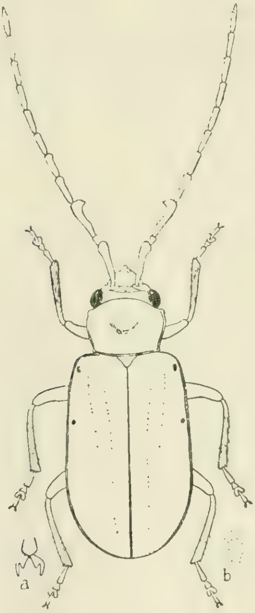

Fig. 139.—*Palpoxena facialis* (Baly).
a, claws; *b*, nature of punctation of elytra.

to each of the following segments. *Prothorax* : upper surface with a shallow depression in the middle of the basal area, background shagreened, sparsely covered with minute punctures which are more numerous on the lateral areas, especially in front. *Elytra* : upper surface background shagreened and comparatively closely covered with well-impressed and fine punctures. *Underside* : epipleuron broadest near the middle, then narrowing and continued to the apex, inner margin sharp.

Length, 8·5 mm. ; *breadth*, 4 mm.

Distribution. CEYLON : Balangoda, 13–16. iii. 1882 (*G. Lewis*).

Types of *facialis* and *cavifrons* in the British Museum.

I have no doubt that they belong to the same species. Only one species was described by Jacoby under the genus *Neochrolea*, which he erected for *cavifrons*. As the species falls as a synonym of *facialis* the generic name becomes a synonym of *Palpoxena*.

381. **Palpoxena dilaticornis** (Jacoby).

Ænidea dilaticornis Jac., Ann. Soc. Ent. Belg. xl. 1896, p. 287.

Entirely brown.

Head : upper surface finely shagreened, impunctate ; frontal tubercles raised abruptly from the surface behind, with a median longitudinal channel. The front is profoundly modified in the male. Antenna extending a little beyond the elytron ; first segment long, club-shaped ; second small, globular ; third longer than fourth ; fourth slightly longer than fifth ; fifth slightly longer than sixth ; sixth and seventh nearly equal ; eighth slightly shorter than seventh ; ninth similar ; tenth and eleventh much thinner ; from the third each segment has a sharp ridge on the inner margin, seen from below they seem somewhat flattened with the apex truncate and having one or two long hairs which are not conspicuous. *Prothorax* : upper surface background finely shagreened, impunctate, with a round, rather deep depression on each side of the middle. *Elytra* almost as broad at base as towards the apex ; upper surface background finely shagreened, moderately closely covered with fine but well-impressed punctures, the latter having a tendency on the basal area on each side of the suture to arrangement in longitudinal series ; in certain angles the surface appears to be faintly ribbed. *Underside* : epipleuron narrowed behind the middle and continued to the apex, inner margin sharply raised.

Length, 5 mm. ; *breadth*, 2·25 mm.

Distribution. BOMBAY : Belgaum (Andrewes Coll.).

Type in the British Museum.

382. **Palpoxena nasika** nom. nov.

Ænidea nasuta Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 401.

Upper side dark brown with a faint purplish sheen ; breast and abdominal sternites black to piceous or dark brown ; antennæ and legs as brown as the upper side.

Head : upper surface finely and transversely striated, impunctate ; frontal tubercles transverse, convex, with median longitudinal channel and a transverse impression along their posterior margin. The front portion of the head is profoundly modified. Eyes strongly convex. Antenna not very slender, extending to the apex of elytron ; first segment long, club-shaped ; second very small, round ; third nearly equal to fourth ; the fourth to eleventh nearly equal, each segment with a sharp ridge along the inner margin, somewhat flattened on the underside and convex on the upper side, somewhat broadened apically ; eleventh slightly shorter, pointed towards the apex. *Prothorax* : upper surface background shagreened, a shallow depression across the middle which is impunctate, elsewhere finely punctate, on the lateral sloping surface in front more closely punctate and with some comparatively coarser punctures. *Scutellum* finely shagreened, impunctate. *Elytra* nearly as broad at base as towards the apex, a certain area at base gently convex ; upper surface background shagreened, moderately closely covered with well-impressed punctures. *Underside* : epipleuron narrowed behind the middle, continued to the apex, inner margin sharply raised, this being more accentuated at the broadest portion.

Length, 5·5 mm. ; *breadth*, 2·5 mm.

Distribution. ANAMALAIS (Andrewes Coll.).

Type in the British Museum.

383. **Palpoxena nasuta** (Westwood).

Luperus nasuta Westwood, in Guérin, Mag. Zool. vii, 1837, class ix, pl. 177.

Ænidea bengalensis Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 133.

General colour brown, prothorax sometimes with a faint purplish sheen ; elytra greenish-blue on background colour of piceous, between the completely piceous to the completely blue-green of elytra there are transitional stages ; basal portion of first segment of antenna black ; sometimes legs lighter brown ; in the specimens before me the blue component predominates ; Westwood's illustration contains more green.

Head : upper surface impunctate ; frontal tubercles abruptly raised from the surface behind, with a small round depression in the middle just behind them and a longitudinal median impression. The front part of head is profoundly modified. Eyes strongly convex. Antenna not very slender, extending just beyond the apex of elytron; first segment thickened, slightly concave below, with a fine ridge on the inner margin, the concave surface with a brush of long pendent hairs; second short, also with a brush of long hairs on the underside; third long with one or two long (but not very long) hairs near the apex; fourth slightly shorter than third; from the fourth to eleventh nearly equal, each segment (except the pointed apical portion of eleventh) with a sharp ridge along the inner margin, the underside slightly concave, and one or two moderately long hairs near the apex; tenth and eleventh somewhat narrower than the others. *Prothorax*: upper surface background shagreened, with a few indistinct punctures on the lateral surface, an impunctate depression across the middle. *Scutellum* shagreened. *Elytra* almost as broad at base as towards the apex; upper surface background shagreened, moderately closely covered with well-impressed punctures. *Underside*: epipleuron narrowed near the middle and continued to the apex, inner and outer margins sharply raised.

Length, 6·5 mm.; *breadth*, 2·5 mm.

Distribution. UNITED PROVINCES: Dinapore.

Type in the British Museum.

There are at least two specimens in the collection of the British Museum which should be referred to this species. One of them has a label of identification in Hope's handwriting and the other in Baly's. It is known that Westwood described several species which had Hope's labels. Westwood states that he described this species from specimens in W. W. Saunders' collection (see page 446), and according to Horn's history of collections Saunders's collection came to the British Museum through Baly. I have, therefore, made one of these examples the type.

384. **Palpoxena pilicornis** (Jacoby).

Ænidea pilicornis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 285.

Upper surface dark shining brown, underside piceous, four apical segments of antenna blackish.

Head together with eyes somewhat broader than the prothorax; in the male the front part is profoundly modified. Upper surface impunctate, frontal tubercles transverse with a fine impressed line between them and a small posterior depression in the middle. Antenna in the male extending slightly beyond the apex of elytron; first segment not very long, with only a slight difference between the thickness of the club and the basal portion, a bunch of long pendent hairs on the underside, one or two much longer; on the underside of the second globular segment three very long hairs of unequal size; each of the following segments, in addition to the usual hair-clothing, has at the apical angles two or three of these peculiar long bristles; seen from above third segment with a larger apical knob than the other following segments, shorter than fourth; fourth and fifth nearly equal; sixth somewhat shorter than fifth; seventh somewhat shorter than sixth; seen from below, the segments from the fourth are concave on the underside with the inner margin sharp and continued to the inner angle, where a large bristle is situated; last four segments thin. *Prothorax*: upper surface with a depression on each side of the middle, background shagreened, indistinctly and sparsely punctate. *Elytra* nearly as broad at base as at apex; upper surface background shagreened, moderately closely covered with fine but well-impressed punctures. *Underside*: epipleuron narrowed behind the middle and continued to the apex, inner margin sharp.

Length, 6 mm.; *breadth*, 2·75 mm.

Distribution. BOMBAY.

Type in the British Museum.

385. **Palpoxena pallida** (Jacoby).

Ænidea pallida Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 286.

Entirely pale yellow-brown; in some examples the general colour is dark brown and the antenna, tibiæ and tarsi tend to become blackish.

Head: in the male the front part is profoundly modified. Upper surface finely shagreened, impunctate; frontal tubercles transverse and extending nearly to the eye-margin, behind them in the middle a small deep depression. Antenna extending nearly to the apical area of elytron; first segment club-shaped but not very long, on the underside a brush of pendent bristly hairs; the second segment small, rounded, with three or four long bristly hairs; third and fourth nearly equal; fourth to eleventh (excluding the pointed apical portion) nearly equal to one another, each with a fine ridge on the inner margin and two or three bristly hairs near the apex, but not so long as in *pilicornis*; in the female the segments are similar to those of male except that the fine ridge on the inner margin and the brush under the first segment are absent. *Prothorax*: upper surface with a small depression on each side of the middle, background shagreened, impunctate in the middle area, but with a few punctures on the lateral sloping area on each side. *Elytra* nearly as broad at base as at apex; upper surface background shagreened;

moderately closely covered with fine but well-impressed punctures, on the basal area nearer the suture there is a certain tendency towards arrangement in longitudinal rows. *Underside* : epipleuron narrowed behind the middle and continued to the apex, inner and outer margins sharp.

Length, 6·25 mm. ; *breadth*, 3 mm.

Distribution. BOMBAY : Belgaum (Andrewes Coll.).

Type in the British Museum.

386. **Palpoxena modesta** (Jacoby).

Ænidea modesta Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 288.

Entirely pale to somewhat darker brown.

Head : the front of the head is not modified in the male as in other species. Upper surface finely shagreened, impunctate ; frontal tubercles abruptly raised from the surface behind, transverse, with a longitudinal median line ; in the male clypeus flat, vertical, in the female more convex. Antenna extending to the apex of elytron or a little beyond ; in the male the first segment club-shaped but very long ; second minute, globular ; third to eighth segments are stouter, nearly equal to one another in length, and with the apex of each truncate but without any other modification ; ninth somewhat longer and more slender than eighth ; ninth, tenth and eleventh nearly equal to one another ; in the female the segments are not thickened as in the male, they are uniformly round and nearly equal to one another. *Prothorax* : upper surface finely shagreened, sparsely covered with fine punctures ; a shallow depression acrosss the middle but not reaching the lateral margins. *Elytra* almost as broad at base as towards the apex ; upper surface background shagreened, moderately closely covered with fine but well-impressed punctures. *Underside* : epipleuron narrowed behind the middle, continued to the apex, inner margin sharply raised.

Length, 5·5 mm. ; *breadth*, 2·25 mm.

Distribution. BOMBAY : Belgaum (Andrewes Coll.).

Type in the British Museum.

387. **Palpoxena rufofulva** (Jacoby).

Ænidea rufofulva Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 287.

Entirely light to dark brown or reddish-brown.

Head : upper surface impunctate ; frontal tubercles triangular with a fine median line and an impressed transverse line behind. Antenna extending a short distance beyond the middle of elytron or a little beyond ; first segment long, club-shaped ; second very small, globular ; third, fourth and fifth nearly equal to one another; sixth slightly shorter than fifth; sixth to eleventh nearly equal to one another. *Prothorax*: upper surface with a deep depression on each side of the middle, background shagreened, very sparsely and finely punctate, more punctures on the lateral surfaces than on the middle. *Elytra* as broad at base as near the apex; upper surface background shagreened, moderately closely punctate. *Underside*: epipleuron narrowed behind the middle, continued to the apex, inner and outer margins sharp.

Length, 6·25–7 mm.; *breadth*, 2·5–3 mm.

Distribution. BOMBAY: Belgaum (Andrewes Coll.).

Type in the British Museum.

388. **Palpoxena barbata** (Baly).

Ænidea barbata Baly, Cist. Ent. ii, 1879, p. 464.

General colour pale brown, breast and elytra black; upper side shining.

Head in the male together with the eyes slightly broader than the prothorax; upper surface shagreened, impunctate; frontal tubercles transverse owing to the great modification of the front part of the head. Eyes set on a raised portion of which the front part is swollen. Antenna long, slender, extending to the apex of the elytra; first segment bent outwards, its club very wide with a long slender stalk, a few bristly hairs on the underside of the club; third and fourth segments flattened in one aspect, long and nearly equal; fifth slightly shorter than fourth; from fifth to eighth the segments are of slightly diminishing length; ninth slightly shorter than eighth; ninth, tenth and eleventh equal; long hairs pendent from the undersides of segments three to eight. *Prothorax*: upper surface almost impunctate except for a few very fine punctures, on each side of the middle a deep trough-like excavation. *Scutellum* smooth, impunctate. *Elytra* almost as broad at base as at apex; a basal area on each side of the scutellum moderately convex; upper surface smooth, background finely shagreened, sparsely covered with very fine and indistinct punctures; lateral margin narrowly reflexed. *Underside*: epipleuron not very broad and, narrowing slightly at the middle, continued to the apex; inner and outer margins sharply raised.

Secondary sexual characters. In ♂ (1) the clypeal region profoundly modified; (2) the first segment of the front tarsus somewhat broadened; (3) on the underside of the first segment of both front and middle tarsus an elliptical specialized area.

Length, 7·75 mm.; *breadth*, 4 mm.

Distribution. ASSAM, from the hilly regions (*A. W. Chennell*); Sadiya (Brit. Mus.).

Type in the British Museum.

There are six examples in the collection of the British Museum; all are males.

389. **Palpoxena rufipennis** (Jacoby).

Metrioidea rufipennis Jac., Proc. Zool. Soc. Lond. 1887, p. 114.

Underside black; upper side red except the prothorax which is deep greenish-black; front part of head, antennæ and legs yellow-brown.

Head: upper surface impunctate, interocular space behind the frontal tubercles with impressed line; frontal tubercles transverse with the wedge-shaped posterior part of clypeus between them; root-cavity of antenna very close to the eye-margin. Eyes strongly convex, rising abruptly and without any raised base. Antenna almost as long as the body; first segment with some prominently long hairs; third outwardly curved, somewhat produced at the apex; on the underside of each segment from third to eleventh the surface is specialized, each segment from third to basal portion of eleventh has a sharp ridge on the inner margin; third not longer than fourth though bent; from the fourth to eleventh the segments are nearly equal to one another in length, although they may appear different in different aspects. *Prothorax*: upper surface with a shallow depression across the middle, background finely shagreened, nearly impunctate in the middle area, two comparatively large punctures, one on each side of the middle, a few fine punctures on the basal area and on the sloping area in front on each side, where one or two larger punctures also occur. *Elytra*: epipleuron upper surface background shagreened, moderately closely covered with fine but well-impressed punctures. *Underside*: broader at base, abruptly narrowed near the middle and continued to the apex, inner and outer margins sharp.

Length, 6 mm.; *breadth*, 2·5 mm.

Distribution. CEYLON: Kandy, 17–23. ii. 1882 (*G. Lewis*).

390. **Palpoxena crassipalpis** (Jacoby).

Ænidea crassipalpis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 986.

General colour testaceous, base of head and prothorax fulvous, elytra black with a slight bluish tint, rather dull, not shining.

Head: upper surface impunctate; interocular space excavated, the excavated portion containing two pointed processes, one on each side, with a tuft of hair below; penultimate segment of maxillary palpus enormously widened, terminal segment extremely short, truncate. Antenna slender, apical segments shorter. *Prothorax* broader than long; upper surface impunctate, a deep transverse sulcation not extending to the sides. *Elytra* with a transverse depression behind the base; scarcely perceptibly punctate.

Secondary sexual characters. In ♂ (1) the head is excavated in front, the excavation containing two pointed processes; (2) the penultimate segment of maxillary palpus greatly enlarged.

Length, 6 mm.

Distribution. TENASSERIM (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

391. **Palpoxena viridis** (Hope).

Auchenia viridis Hope, in Gray, Zool. Miscell. 1831, p. 29.

Body comparatively broad. Head, antennæ, prothorax, breast and legs warm brown; abdominal sternites and scutellum piceous; elytra bluish-green with faint purple reflections; in the male the excavated portion of the head black.

Head: upper surface finely shagreened, impunctate; deeply depressed in the middle of interocular space behind the frontal tubercles, some fairly large pits in the depression each contain a short, stiff, erect hair; frontal tubercles convex but not delimited behind, with a median longitudinal impressed line. In the male the front portion of the head is profoundly modified. Eyes strongly convex. Antenna not very slender, hardly extending to the apical area of elytron; in the male, first segment not very long, swollen, narrowed at base, truncate at apex, some stiff hairs on the underside; second very small, rounded; third very short, much thickened, covered with stiff bristly hairs, more on the underside; fourth very long, straight; fifth nearly two-thirds of fourth; fifth, sixth and seventh nearly equal to each other in length, somewhat convex ventrally and straighter dorsally, this character being more pronounced in seventh; eighth twisted in appearance, deeply concave dorsally, with a median longitudinal ridge, gently convex ventrally; I have not seen the last three segments, but from analogy they are probably thin and cylindrical. In the female, first segment long, club-shaped; second small, round; third not thickened as in male, three times as long as second; fourth longer than third ; fifth shorter than fourth ; from fifth to tenth the segments are progressively shorter ; eleventh slightly longer, with the apex pointed. *Prothorax* : upper surface background finely shagreened, on each side of the middle a deep depression which contains a few punctures, front and lateral areas also sparsely covered with fine and indistinct punctures. *Scutellum* sharply triangular, surface finely shagreened. *Elytra* nearly as broad at base as towards the apex ; a certain basal area gently convex ; upper surface background finely shagreened, closely covered with strongly impressed punctures, which are roughly in groups of longitudinal rows, each group being between two ribs, about eight rows on each elytron ; sometimes these ribs are not apparent, but on holding the insect at a certain angle they become visible. *Underside* : epipleuron somewhat narrowed before the middle, continued to the apex, inner margin sharply raised.

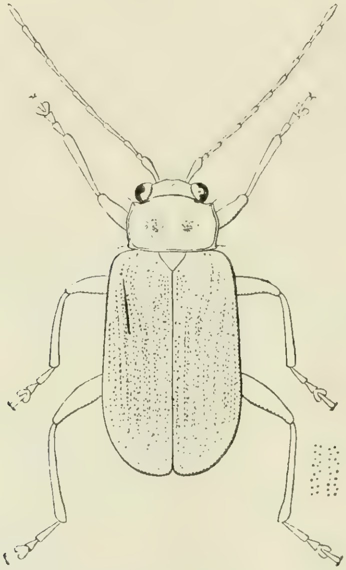

Fig. 140.—*Palpoxena viridis* (Hope), ♀. Dots on the right corner indicate the arrangement of elytral punctures.

Length, 8·75 mm. ; *breadth*, 4 mm.

Distribution. NEPAL (type-locality) (Hardwicke Coll.). ASSAM : Patkai Mts. (*Doherty*). BURMA : Momeik (*Doherty*).

Type in the British Museum.

392. Palpoxena indica (Jacoby).

Dorydea (?) *indica* Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 231.

Platyxantha indica Jac., Weise, in Junk & Schenkling, Coleop. Cat. pt. 78, 1924, p. 156.

General colour testaceous, elytra metallic blue or reddish, three apical segments of antenna black. In the completely brown specimens there is a trace of purplish sheen on elytra.

Head: upper surface sparsely and finely punctate. The front part of the head is profoundly modified in the male. Antenna as long as the body; second segment extremely small; third twice as long, swollen, transversely quadrate; fourth very long, slightly curved; fifth slightly longer than sixth, each thinner at base and gradually thickening towards the apex; seventh somewhat shorter than sixth, but somewhat thicker and with the underside more convex, where in the middle nearer the apex is a specialized area with a process; eighth slightly shorter than seventh, somewhat flattened on the underside, broader towards the apex, upper side concave in front, and strongly convex behind with a median longitudinal ridge; ninth very strongly concave on upper side with a median sharp ridge; tenth also similarly concave but without the median ridge; eleventh somewhat longer, the apex so well delimited that it looks like a separate segment. *Prothorax* nearly twice as broad as long; the sides slightly rounded anteriorly; anterior angles rather prominent; upper surface with two impressions, background finely shagreened, sparsely and finely punctate. *Elytra*: a certain area at base gently raised; upper surface background finely shagreened, closely and finely punctate, punctures divided by smooth, longitudinal, narrow spaces or lines which look like ribs in some aspects; punctures large and well impressed in the middle area, giving an appearance of slight rugosity. *Underside*: epipleuron gradually narrowed behind the middle, continued to the apex, inner and outer margins sharp.

Secondary sexual characters. In ♂ the antennæ are modified.

Length, 8·25 mm.; *breadth*, 3·5 mm.

Distribution. Burma: Teinzo, iii. 1886; Tenasserim, Thagata, iv. 1887 (*Fea*).

Type in the British Museum. The Genoa Museum may also claim to possess the type.

Jacoby doubted the correctness of placing this species in the genus *Doridea* (=*Platyxantha*=*Dorydea*), and he also thought that in the swollen palpi it resembled (*Ænidea*) *Palpoxena*.

393. **Palpoxena violaceipennis** (Jacoby).

Ænidea violaceipennis Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 284.

General colour brown, elytra piceous with violet sheen.

Head : in the male the front part is profoundly modified ; together with the eyes slightly broader than the prothorax ; upper surface finely shagreened, impunctate ; frontal tubercles transverse, each forming the posterior boundary of the antennal root-cavity. Each eye set on a raised portion. Antenna fine, extending to the apex of elytron ; first segment club-shaped, elongate, with the inner angle drawn into a knob, so that the apex is elliptical and slanting ; second segment small, globular ; from third to tenth each segment is somewhat bent and appears to be eccentrically articulated to one another ; fourth slightly shorter than third ; fifth slightly shorter than fourth ; fifth to eighth nearly equal to one another ; ninth somewhat shorter than eighth ; ninth, tenth and eleventh nearly equal to one another ; on the underside of the segments are fine pendent hairs. *Prothorax* : upper surface with a large depression across the middle ; background shagreened, almost impunctate except for a few scattered minute punctures. *Elytra* nearly as broad at base as at apex ; upper surface background shagreened, sparsely covered with very fine but distinct punctures. *Underside* broader at base, somewhat narrowed before the middle, continued to the apex, inner margin sharp.

Length, 6·5–7 mm. ; *breadth,* 3·25–3·5 mm.

Distribution. Burma : Toungoo.

Type in the British Museum.

394. **Palpoxena bella** (Weise).

Platyxantha bella Weise, Tijdschr. Ent. lxv, 1922, p. 109.
Dorydea basalis Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 233.

General colour testaceous ; elytra reddish-fulvous with a slight purplish sheen, basal margin, including the corresponding portion of epipleuron, metallic blue ; three apical segments of antenna fuscous ; scutellum black ; abdomen dark bluish-black.

Head : upper surface impunctate ; frontal tubercles obsolescent, narrowly transverse ; front portion of the head depressed with a thin acute ridge along the middle ; maxillary palpi slender. Antenna nearly as long as the body ; second segment very small ; third one-half shorter than fourth ; eighth and ninth modified, being concave and emarginate on the underside ; two apical segments slender. *Prothorax* about one-half broader than long ; sides slightly rounded before the middle ; anterior angles outwardly produced into a small process ; upper surface impunctate, a medially interrupted depression. *Elytra* : upper surface with double rows of closely placed punctures, interstices show a tendency to be costate.

Secondary sexual characters. In ♂ the eighth and ninth segments of antenna are modified.

Length, about 6 mm.

Distribution. BURMA : Bhamo, vi. 1886 (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English. For our purpose it is convenient to include this species in the present genus. Weise did not describe *bella* but gave the name to this species because *basalis* was preoccupied.

395. **Palpoxena konbirensis** (Weise).

Platyxantha konbirensis Weise, in Junk & Schenkling, Coleop. Cat. pt. 78, 1924, p. 157.

Platyxantha indica Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 445.

General colour rich bright brown ; about one-third of apical area of elytron piceous with a bluish-purple sheen on it ; seen at certain angles the brown colour appears to have a faint violet sheen, from the eighth the antennal segments are black.

Head : upper surface with the background finely shagreened, very sparsely punctate ; frontal tubercles transverse, smooth, impunctate, with a longitudinal median channel and a deeper channel forming its posterior boundary. The modification of the front of the head consists of a strongly raised clypeus, posteriorly convex and anteriorly slightly concave and having at the summit a bunch of hairs probably surrounding an orifice. Labrum broader than long with the front margin slightly emarginate and sides rounded, not modified in any way. Eyes strongly convex. Antenna not very slender, extending to the middle of elytron ; first segment long, club-shaped ; second very small ; third slightly longer than fourth ; from the fourth the segments are nearly equal to one another. *Prothorax* : upper surface background finely and irregularly striate, sparsely punctate, punctures fine and distinctly impressed, more crowded on the sloping lateral surface in front and with one or two comparatively larger punctures, on each side of the middle a moderately deep hollow. *Scutellum* : surface finely and transversely striated. *Elytra* almost as broad at base as towards the apex ; upper surface background finely shagreened, moderately closely covered with well-impressed punctures, some comparatively stronger on the basal area, those on the apical blue patch very fine. *Underside*: epipleuron somewhat narrowed behind the middle, continued to the apex, inner and outer margins sharp.

Length, 6·5 mm.; *breadth*, 3 mm.

Distribution. BENGAL: Konbir (*Père Cardon*).

Type location unknown to me; *paratype* in the British Museum.

The name *indica* being preoccupied, Weise introduced the name *konbirensis*.

Comparative Anatomy of the Modified Heads of the Males of some Species of the Genus Palpoxena.

There are several genera of which some species show a modification of the front portion of the head and of the antennal segments as secondary sexual characters of the male. These modifications are specific, so far as I can ascertain. In discussing the antennal formation in the introductory part of this work I suggested that they are probably connected with some sort of secretory function. The study of these head structures leads me to a generalization which is tentatively stated here: whenever it is necessary for the organism to make available to the external world, *i. e.*, outside its body, the products of a certain kind of secretion, any part of the body may undergo appropriate reorganization for the special purpose.

In order to study the peculiarities of the heads of the species named below, the following structures must be taken into account:—(1) The two antennal sockets, (2) the space between them, (3) the eye, on each side forming the outermost boundary of the complex studied here, (4) the large space between the front margins of the antennal sockets and the hind margin of the labrum, (5) the labrum, (6) part of the mandibles lying under the labrum, and (7) the apical segments of maxillary palpi, generally seen one on each side of the labrum. The large space referred to in (4) is depressed or concave, sometimes to such an extraordinary degree as to become a deep cavity in which there are usually processes, bunches of hairs and other minor structures. The labrum assumes different forms in different species, its hind margin containing structures which seem to be associated with those that are found in the cavity. The mandibles are not concerned in these modifications. The penultimate segment of the maxillary palpus is very often swollen, the apical being either very minute or well developed.

All drawings show the front aspect so that the foreground contains the labrum and the background the transverse line across the head behind the antennal roots. In the schematic figure (fig. 141, *o*) the relevant structures are shown in their proper positions and throughout this scheme has been followed, so that it is not necessary to name each part in every drawing.

In *truncatipennis* (fig. 141, *a*) the whole of the front part is depressed so that the antennal sockets and inner margin of each eye are within the depressed area. The excavation behind the labrum is so deep that unless it is especially illuminated the interior cannot be seen. From it emerges a process which meets the labrum between two apparent orifices with raised rims. The front part of the labrum is moderately spacious and gently convex, bearing long, straight, silky-looking hairs. The area below each eye-margin is suitably moulded to form the upper part of the lateral wall of the cavity.

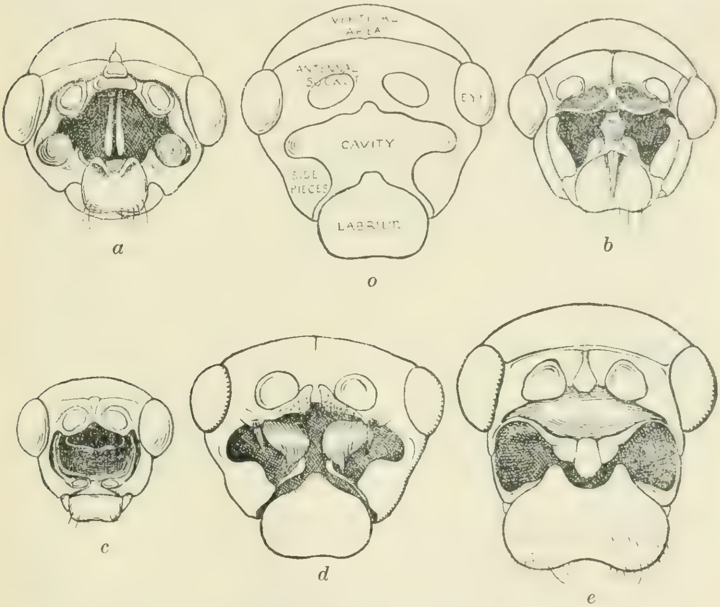

Fig. 141.—Comparative anatomy of heads of males of some species of *Palpoxena*.

o. Diagram showing the relative positions of the parts of the head treated here. *a*, *P. truncatipennis* (Jacoby); *b*, *P. latifrons* (Jacoby); *c*, *P. longicornis* (Jacoby); *d*, *P. eximia* (Baly); *e*, *P. facialis* (Baly).

In *latifrons* (fig. 141, *b*) the area immediately below the antennal sockets is excavated, the interior being rounded and smooth. In the middle, in line with the interantennal median longitudinal impression, is an upright process. In front of the latter is a larger upright process arising from a deeper but similarly rounded and smooth cavity. The summit of the larger process is broad, each lateral corner having a little spinule; towards the base each side contains short, fine hairs. Anterior to the large process are two structures, one on each side of the middle, each being solid, triangular, with its front surface sloping and smooth and having a long spine from the apex. These two structures appear to be opposed to the hind margin of the labrum. The latter has the posterior margin rounded and continuous with the rounded sides, the anterior margin also rounded with a slight emargination in the middle and a sharp sword-like ridge narrowing in front along the middle. On each side of the ridge the surface is gently depressed, not smooth, and bears one or two long hairs. The apical segment of palpus is well developed.

In *longicornis* (fig. 141, *c*) the antennal sockets are not involved, but immediately below is a deep excavation, separated from the general excavation of the whole of front portion by a thin septum. The excavations are so deep that the interior cannot be seen unless specially illuminated by suitable light. The rounded lateral boundary, *i. e.*, along each eye-margin, is channelled. The front border contains two deep holes, one on each side of the middle. It seems that these are connected with the channelled sides. The labrum is not apparently concerned with the modifications. The apical segment of the palpus is conical, small, but well developed.

In *eximia* (fig. 141, *d*) the front portion of the antennal sockets is raised, this piece overhanging the cavity immediately under it. Seen from the front two coils (one on each side of the middle) of golden-brown hairs issue from the cavity; each coil is neatly wound round, resting against a process of the side-piece of the excavated portion. In this species the excavation is extensive, extending to the eye-margin. The margins of the walls of the excavation are covered with long hairs. The labrum has the front margin gently emarginate, sides rounded and narrowed behind, the hind margins bearing hairs; it is nearly quadrate, being almost as broad as long, with the surface smooth, slightly depressed laterally behind and sloping down in the middle where it is narrowed. The process of the side-piece of the excavated portion is opposite the postero-lateral margin of the labrum. The labrum is so large that, when viewed from above, the sides of the mandibles are not visible.

In *facialis* (fig. 141, *e*) the antennal sockets are in the upper portion of the excavation, that is to say, the front piece between the antennal sockets, present in some other species, is absent in this species. This excavation is separated by a partition formed of three pieces, two lateral and one median. This latter is produced slightly in the middle and is rounded and bent down. The front excavation is larger and without any lateral walls. The labrum is much broader than long, with the front margin deeply emarginate, sides rounded, and the posterior margin with two rounded processes, between which is a deep emargination. These latter rest against the underside of the partition between the anterior and posterior excavations. The apical segment of the palpus is conical, well developed and not thin.

In *dilaticornis* (fig. 142, *f*) the excavation is open, *i.e.*, without any roof or lateral walls. The antennal sockets are very close to each other. Seen from above there is a depression perpendicularly below the antennal sockets. On each side of the depression at a higher level is a broad and shallow channel. The labrum is extended behind to the base of the depression; it is quadrate, slightly emarginate in front, sides continuously rounded, surface smooth, finely punctate and shallowly depressed posteriorly on each side of the middle. The apical segment of the palpus is conically sharp.

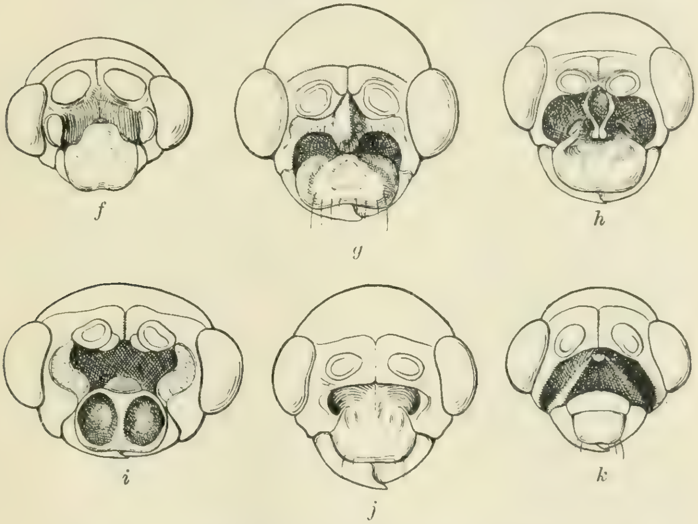

Fig. 142.—Comparative anatomy of heads of males of some species of *Palpoxena*.

f, *P. dilaticornis* (Jacoby); *g*, *P. nasika* nom. nov.; *h*, *P. nasuta* (Westwood); *i*, *P. pilicornis* (Jacoby); *j*, *P. pallida* (Jacoby); *k*, *P. rufofulva* (Jacoby).

In *nasika* (fig. 142, *g*), seen from above, the piece between the antennæ projects forward, is convex above, sloping down on each side, with the surface closely punctate and hairy and posteriorly extended in a wedge-shaped manner between the frontal tubercles. On each side of this projecting piece is a deep and bare excavation bordering the eye-margin. The labrum rises triangularly, narrowing to a height sufficient to meet the interantennal projection. The front margin is emarginate and the sides rounded ; the front surface is steep from the summit to the base, somewhat triangular and slightly concave ; each lateral surface is similar but more generally concave. There are bunches of hairs in the excavation on each side and at the apices of the structures, where these are opposed to each other. The apical segment of the palpus is long, conical and well developed.

In *nasuta* (fig. 142, *h*) the first segment of the antenna has a thick hair brush on the underside and the interantennal projection is directly under the long pendent hairs. The projection itself is somewhat broad, concave above, with the apex broad, and from each lateral corner a spine-like process projects backwards. The excavation on each side under the eye-margin is deeply and uniformly concave, smooth and polished. The labrum is large, quadrate and projects far into the cavity, in fact forming its floor ; the front margin is slightly emarginate, the sides uniformly rounded, and the surface sloping behind with a longitudinal median faint ridge, punctate and sparsely hairy. The last segment of the palpus is well developed and sharply conical.

In *pilicornis* (fig. 142, *i*) the hairs on the underside of the first segment of the antenna are long, overhanging the cavity directly below the antennal sockets. There is apparently no interantennal projection. The cavity on each side under the eye is roofed over by a projecting piece from the eye-margin. The labrum is quadrate, almost rounded on all sides, with a slight emargination in the middle of the front margin and with the surface concave, more so posteriorly, and finely punctate. The first segment of the palpus is well developed and is sharply conical.

In *pallida* (fig. 142, *j*) the excavation is open, the labrum occupying the whole floor. Directly below the antennal sockets some fine hairs project forward. On each side the concavity does not extend to the eye-margin and is partially roofed over by a thin projecting piece. The labrum is quadrate, with the posterior margin rounded and the anterior almost straight, and each lateral corner in front is almost a right angle but is rounded ; the surface is concave on each side, more so posteriorly, with a median longitudinal ridge, and is smooth and impunctate. The apical segment of the palpus is small and sharply conical.

In *rufofulva* (fig. 142, *k*) the area in front of the antennal socket is conically raised in the shape of a solid triangle ; just below the summit in front is, apparently, an orifice with a brush of fine projecting hairs; the surface in front at the base of the triangle is slightly concave. The labrum is not, apparently, involved in this species in the modification. The palpus is considerably thickened, with the apical segment well developed and conically pointed.

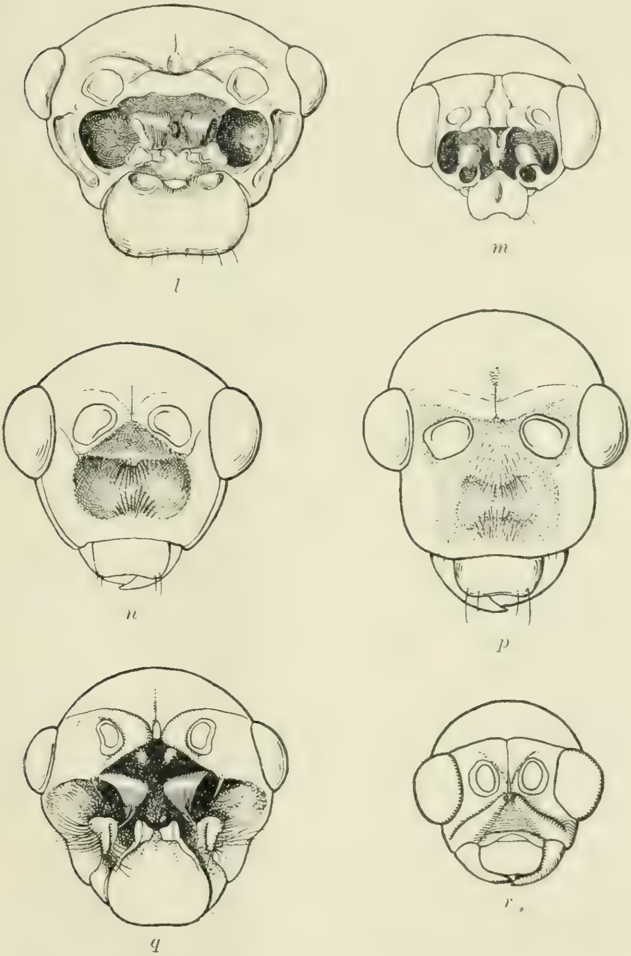

Fig. 143.—Comparative anatomy of heads of males of some species of *Palpoxena.*

l, *P. barbata* (Baly); *m*, *P. rufipennis* (Jacoby); *n*, *P. viridis* (Hope); *p*, *P. indica* (Jacoby); *q*, *P. violaceipennis* (Jacoby); *r*, *P. konbirensis* (Weise).

In *barbata* (fig. 143, *l*) the antennal sockets are comparatively far apart, the space between them being concave. In the middle and in front of the interantennal space are two bundles of hairs with a small process between them, all projecting forward. The cavity on each side of these is deep, with the interior rounded and smooth ; the rim of the opening to the outside is overgrown with long hairs ; between the actual eye-margin and the outer side of the rim of the cavity-opening is a raised structure containing a moderately broad channel ; the top of the latter, apparently, contains an orifice. The labrum is broader than long, with a deep but small emargination in the middle of the posterior margin, with the anterior margin straight and sides rounded and with the upper surface convex generally but with a shallow depression occupying a fairly large area in the middle of the front ; on each side of the median emargination of the posterior margin a portion of the labrum projects like a blunted boss, in the middle of which is a small orifice. In function these two orifices are probably opposed to the hair bundles that project from the front part. The posterior portion of the labrum overhangs the anterior cavity. The palpus is considerably swollen ; the apical segment is widely rounded with a truncated apex and is embedded in the swollen penultimate segment.

In *rufipennis* (fig. 143, *m*) between the antennal sockets is a projecting piece which overhangs the extensive cavity, rendering the interior very dark. This projecting piece has a fringe of forwardly-directed hairs and two impressed lines on the dorsal surface which are continuous with the arms of the wedge, separating the frontal tubercles. Below the overhanging piece, arising from the interior, projects a large process which has a wide orifice at the apex. The side-pieces from the excavation under each eye-margin are obliquely directed towards this central process. The labrum is comparatively small, lying at the bottom of the general excavation, with the front margin deeply emarginate, the sides rounded, the surface convex in front and depressed behind, and with a short median process directed backwards. The apical segment of the palpus is long, conical and nearly equal in length to the penultimate segment, which is not swollen.

In *viridis* (fig. 143, *n*) there is a large depression in front of the antennal sockets. The lateral margins of the depressed area are not close to the eyes. Directly below the antennal base is a triangular area with a rough surface containing numerous raised points ; in the middle of this area is a bunch of radiating hairs, most of them being directed forwards. Below the rough triangular area is a large, smooth and polished cavity. From the middle of the front margin arises a bunch of hairs which are directed backwards, so that the two bunches are opposed to one another. The labrum apparently takes no part in this modification. The last segment of the palpus is well developed and sharply conical.

In *indica* (fig. 143, *p*) the area anterior to the antennal sockets is deeply hollowed, with the latter and front portions appropriately moulded. In the hollowed portion are two bunches of erect hairs, situated separatedly but close to each other : one bunch is directed anteriorly and the other, arising from the front, is directed posteriorly, so that the bunches face each other and overhang a deeper cavity. The labrum apparently does not take any part in this modification. The palpus has the apical segment conical and well developed.

In *violaceipennis* (fig. 143, *q*) the excavation is very extensive, commencing from the antennal sockets. The front margins of the latter are oblique and slanting, containing long, erect and forwardly-directed hairs. From each side of this slanting piece arises a well-coiled bunch of hairs, which is turned round in front, the twisted anterior end of the coil lying between the posterior process of the labrum and the lateral piece situated in front of the excavated eye-margin. This lateral piece is somewhat triangular in shape and is provided with a large bunch of hairs in front. The labrum is continuously rounded in front and laterally, and is provided posteriorly with two processes, each of the latter having the tip somewhat expanded. Between these processes is a deep emargination. The penultimate segment of the palpus is enormously swollen and the apical is bluntly conical, being imbedded in the previous segment.

In *konbirensis* (fig. 143, *r*), seen from above, the part in front of the antennal sockets is raised and convex above, sloping down on each side and behind ; in the middle, on each side of the median longitudinal line, is a minute orifice with a small bunch of hairs projecting forward ; the front surface of this raised structure is somewhat concave. The labrum is normal and apparently takes no part in the modification. The palpus is swollen, having the conical apical segment imbedded in the penultimate segment.

Genus **PARASTETHA** Baly.

Parastetha Baly, Cist. Ent. ii, 1879, p. 461.

Genotype, *Parastetha nigricornis* Baly. Fixed by Baly.

This is a monotypic genus.

Body oblong, broad.

Head together with the eyes narrower than the prothorax ; narrowed in front ; upper surface moderately convex, impunctate except for a few fine and scattered punctures ; frontal tubercles oblique, not well defined, area immediately behind them depressed ; clypeus generally elevated, with a few longish hairs ; labrum quadrate, deeply emarginate in the middle of the front margin, dividing it into two lobes which bear long fine hairs ; mandibles large ; maxillary palpus stout, apical segment short, conical, situated on the thickened penultimate segment. Eyes not very convex. Antennæ extending nearly to the middle of elytron, first segment long, club-shaped ; second and third very short and equal ; these three segments are almost hairless except for a few isolated stiff-looking hairs ; from the fourth to eleventh the segments are dorso-ventrally flattened and thickly covered with bristly hairs ; each of these segments is narrowed at base, gradually widening towards the apex and somewhat produced at inner apical angle ; fourth segment distinctly longer than fifth ; fifth slightly longer than sixth ; sixth to eleventh nearly equal to one another ; tenth and eleventh somewhat narrower and triangularly pointed at the apex. *Prothorax* much broader than long ; basal margin widely rounded in the middle, somewhat straighter towards the sides ; sides very gently rounded, margined ; posterior lateral angles acute, anterior also acute and slightly drawn forwards, each containing a seta-bearing pore ; upper surface smooth, sparsely punctate, punctures very fine, on each side of the middle a shallow and round depression, in some aspects the middle portion of the basal area faintly depressed. *Scutellum* large, sharply triangular, surface smooth and impunctate. *Elytra* hardly broader at base than the prothorax ; humerus not strongly convex, impunctate ; upper surface sparsely and confusedly punctate, these punctures fine, in addition there are four incomplete double rows of larger punctures, the rows being more regular on the basal and middle areas and rather indistinct on the apical area. *Underside* almost without hairs except for a few on the abdominal sternites ; epipleuron broad, slightly narrowed behind the middle and continued to the apex ; legs moderately robust, tibiæ covered with bristly hairs, all femora somewhat thickened in the middle, hind tibia somewhat longer than either the front or the middle tibia, hind tarsus longer than either the front or the middle tarsus ; claws appendiculate.

Distribution. INDIA.

396. **Parastetha nigricornis** Baly.

Parasthetha nigricornis Baly, Cist. Ent. ii, 1879, p. 461 ; Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 442.

Bright shining yellow-brown except the following parts :— Eyes shining black, fourth to eleventh segments of antenna dull black, legs pitch-brown to blackish with a very faint metallic bluish-purplish sheen.

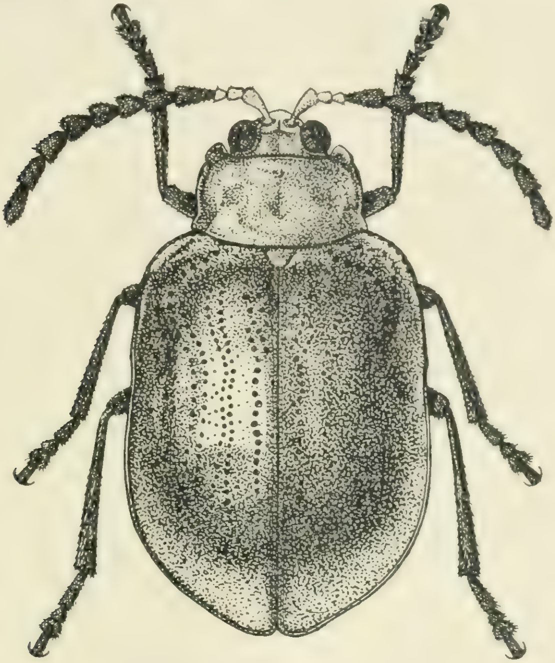

Fig. 144.—*Parastetha nigricornis* Baly.

Length, 7 mm.; *breadth*, 4·5 mm.
Distribution. Assam (*A. W. Chennell*).
Type in the British Museum.

Genus **HYLASPES** Baly.

Hylaspes Baly, Trans. Ent. Soc. Lond. (3) ii, 1865, p. 436; Chapuis, Gen. Col. xi, 1875, p. 237.

Genotype, *Hylaspes longicornis* Baly. Fixed by Baly.

Body robust, broad. Moderately shining.

Head together with the eyes much narrower than the prothorax; upper side gently convex, sparsely punctate; frontal tubercles not very well developed, posteriorly separated from each other by a triangular piece; clypeus gently and evenly convex, covered with hairs; labrum broader than long, with the front border emarginate in the middle; maxillary palpus moderately swollen, with the apical segment bluntly conical. Eyes convex but not very strongly. Antenna extending to the apical area of elytron or sometimes longer; first segment club-shaped; second and third very small, rounded and equal; from fourth to tenth the segments are long, laterally flattened, and with the inner side triangularly expanded, the corresponding apical angle drawn to a point, tenth somewhat narrower; fourth longer than fifth; fifth to tenth nearly equal to one another in length; eleventh with the conical apical portion somewhat longer than tenth, not flattened, nearly cylindrical; except the three basal segments the whole antenna is thickly covered with short bristly hairs. *Prothorax* much broader than long, anterior and posterior margins widely arched, the latter from a point before the corner oblique and straight; lateral borders margined, somewhat reflexed; anterior lateral angles thickened, posterior obtuse, each corner with a seta-bearing pore; upper surface not convex, with a long median channel but not extending to the sides, sparsely but distinctly punctate. *Scutellum* moderately large, triangular, with the apex rounded and surface impunctate. *Elytra* broader than the prothorax; humerus prominent; sides margined; apex of each elytron rounded and the apical area somewhat depressed; upper surface finely punctate, punctures with a tendency towards arrangement in longitudinal rows, on the inner side of each humerus is a short row of somewhat larger and more strongly impressed punctures, along the suture is a similar row of punctures, and in between these are some punctures of the stronger kind in one or two irregular short rows. *Underside* sparsely covered with very fine hairs, legs more thickly covered; epipleuron gradually narrowed behind the middle, continued to the apex, inner margin somewhat raised. Legs fairly robust, not very long, first segment of tarsus longer than the second, third bilobed, claw-segment projecting beyond the bilobed one; claws appendiculate.

Distribution. EASTERN HIMALAYAS. SIKKIM. ASSAM. BURMA.

The above description is taken from the genotype.

397. **Hylaspes longicornis** Baly.

Hylaspes longicornis Baly, Trans. Ent. Soc. Lond. (3) ii, 1865, p. 436.

Hylaspes assamensis Baly, Cist. Ent. ii, 1879, p. 460; Duvivier, Ann. Soc. Ent. Belg. xxxvi, 1892, p. 442.

Hylaspes dohrni Duviv., Stett. Ent. Zeit. xlvi, 1885, p. 246; id., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 442.

General colour light brown; antenna, except the three basal segments, tibiæ and tarsi black. The general colour varies from light to dark brown, but there are intermediate stages.

Length, 10 mm. ; *breadth*, 6·25 mm. (type-example). A larger example : *length*, 12 mm. ; *breadth*, 7 mm.

Distribution. EASTERN HIMALAYAS : Mungpu (type-locality). ASSAM. BURMA : Momeik (*Doherty*) ; Ruby Mines (*Doherty*).

Types of *longicornis* and *assamensis* in the British Museum.

Type of *dohrni* in the Dohrn Collection.

Secondary sexual characters. In ♂ the antennæ are longer, in ♀ shorter.

I have before me many examples from Sikkim, Assam and Burma, and I have also examined Baly's types and carefully studied Duvivier's description of *dohrni*. I cannot resist the conclusion that we are dealing with one and the same species which varies considerably in colour of the elytra, somewhat in their punctation and moderately in size. Accordingly I have treated *assamensis* and *dohrni* as varieties of *longicornis*, the earliest published name of the three.

The colour of elytra varies from a complete brown to black, except the apical portion, which is not black in any of the examples before me. The head, pronotum and scutellum always retain the general colour of the body, and so does the underside.

The variation of the punctation consists in the finer punctures becoming more numerous in brown examples ; in the black elytra the finer punctures are fewer and the larger punctures in rows more prominent.

398. **Hylaspes apurva** sp. nov.

Resembles the genotype in form and structure, but somewhat smaller. Elytra brown, moderately shining, the rest of the body shining black except the fourth to eleventh segments of antenna which are dull pitch-black. In the males the sides of abdominal sternites red-brown. The coloration of this species is characteristic.

Head : in the male antenna longer, extending to the apex of body ; first segment club-shaped ; second and third small and rounded ; third to tenth triangularly expanded on the inner side the angle being somewhat drawn out, but this triangular expansion diminishes in extent as the penultimate segment is approached ; eleventh flattened, narrower, apex bluntly pointed. In the female antenna shorter, extending hardly to the middle of elytron ; the triangular nature of segment four and onwards much less accentuated ; second and third small, nearly equal ; fourth longer than fifth ; from the fifth the segments are shorter than the corresponding ones in the male and are equal to one another. *Prothorax* : the impression on each side of the middle oblique, almost reaching to the lateral margin ; upper surface finely and very sparsely punctate. *Elytra* : punctation as in the genotype, the larger punctures which form rows are more in evidence.

Secondary sexual character. In ♂ the antennæ are modified.

Length, 9·5–10 mm. ; *breadth*, 5·5–5·75 mm.

Distribution. Manipur, 8 ♀♀ (*Doherty*). Burma : Bhamo Hills, 4,000 ft., v. 1916, 2 ♂♂ (*P. M. Mackwood*).

Type in the British Museum.

Genus **HYLASPOIDES** Duvivier.

Hylaspoides Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 443.

Genotype, *Hylaspoides magnifica* Duviv.

This is a monotypic genus.

Body oblong, sides subparallel.

Head with a few punctures ; labrum broader than long, with a series of punctures and hairs along its front border ; frontal tubercles delimited behind by a transverse impression extending from one eye to the other. Eyes large, strongly convex. Antenna in the male nearly two-thirds the length of the body ; first segment club-shaped, moderately long, feebly bent ; second short ; third as long as the first, strongly triangular ; fourth to tenth each a little longer than third, strongly triangularly dilated with the inner apical angle pointed ; eleventh narrow, subsinuate on each side towards the apex which is pointed. In the female the antenna is nearly half the length of the body, segments shorter than those of the male ; first segment club-shaped, bent ; second very short ; third to sixth subequal, each somewhat shorter than first, somewhat dilated triangularly near the apex ; seventh to tenth more strongly so dilated, as long as broad at the apex ; eleventh subovate, pointed at the apex. *Prothorax* twice as broad as long, somewhat narrowed in front with anterior angles prominent, thickened, posterior angles almost right angles ; upper surface with a depression on each side and with a few punctures. *Scutellum* smooth, convex. *Elytra* : lateral borders slightly margined, broadly rounded at the apex, humerus strongly convex ; surface moderately convex, punctate-striate, each elytron with three single rows (counting from the suture) moderately close together, after these rows three double rows remotely placed. *Underside* : in the male the last visible abdominal segment with a small oval and deep impression on each side of the middle ; legs fairly robust ; claws appendiculate.

Distribution. Himalayas.

399. **Hylaspoides magnifica** Duvivier.

Hylaspoides magnifica Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 444.

Body oblong, slightly broadened behind. Head, prothorax, breast and femora of a beautiful metallic green colour with golden or purple reflections; abdomen red; scutellum and elytra coppery bronze with purple reflections; antennæ, tibiæ and tarsi black; first two segments of antenna shining, with metallic reflections.

Secondary sexual characters. In ♂ the antennæ and last visible abdominal segment are modified (see above).

Length, 9 mm.; *breadth*, 4·5 mm.

Distribution. SIKKIM.

Type in Duvivier's collection.

I have not seen the type of this species. The above description is adapted from Duvivier's original in French. The coloration is characteristic.

Genus **DORYIDA** Baly.

Doryida Baly, Ent. Monthly Mag. ii, 1865, p. 97, and (2) i, 1890, p. 12; Chapuis, Gen. Col. xi, 1875, pp. 237 & 239; Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 989.

GENOTYPE, *Doryida mouhoti* Baly. Fixed by Baly.

Body fairly large, broad, parallel-sided, somewhat narrowing towards the apex.

Head together with the eyes narrower than the prothorax; upper surface moderately closely punctate, punctures well impressed; a median depression in the interocular space immediately behind the frontal tubercles; the latter not well developed, widely separated from one another by the posterior wedge-shaped portion of clypeus; the latter flattened with the surface punctate; labrum much broader than long with the front margin somewhat emarginate; both maxillary and labial palpi well developed, in the former apical segment slightly longer than the penultimate one. Eyes convex but not very strongly so. Antenna fine, slender, extending slightly beyond the humerus, situated very close to the eye-margin and somewhat in front, so that there is a wide space between the roots of the two antennæ, a fact to be noted in this group; another interesting feature is that between the front margin of the eye and the antero-lateral piece of the clypeus is a channel in which lies the first segment of the antenna when in repose, so that usually the antenna remains bent under the body; first segment very long and club-shaped; second ovate; third longer than second; fourth slightly longer than third; fifth slightly shorter than fourth; fifth to eleventh nearly equal to one another, the latter bluntly pointed; hair-clothing very fine and not very thick. *Prothorax* much broader than long; front border widely concave, hind border parallel to the front border and widely arched, the former somewhat narrower than the latter; sides slightly rounded, sharply margined, slightly reflexed, hind border narrowly margined; front angles thickened, hind ones obtuse, each having a seta-bearing pore; upper surface convex from side to side, sloping down on each side in front, smooth, sparsely and finely punctate; a very shallow depression situated nearer the side than the middle and more posteriorly than anteriorly, sometimes this is not easily seen but it does exist. *Scutellum* triangular with the apex rounded, surface strongly convex and with a few well-impressed punctures in the genotype, in other examples the punctures may be absent and the convexity not so pronounced. *Elytra* broader at base than the prothorax, humerus prominent, a certain basal area on each side of the scutellum convex; confusedly and moderately closely punctate, punctures well impressed, summit of humerus very finely punctate, in the depression along the inner side of humerus punctures closer and larger, behind the basal convexity in the transverse depression punctures also closer and larger, so that round the basal convex area is a belt of larger and closer punctures—a characteristic feature. *Underside* sparsely covered with fine hairs; epipleuron abruptly narrowed after the middle and continued very narrowly to the apex, inner margin sharp. Legs fairly robust and not very long; first segment of tarsus longer than second, third bilobed, claw-segment projecting beyond the bilobed one; claws appendiculate.

Distribution. INDIA. BURMA. SIAM.

The above description is mostly taken from the genotype. Including the genotype three species have been described under this genus, but the species representing the genotype has a very wide distribution.

400. **Doryida mouhoti** Baly.

Doryida mouhoti Baly, Ent. Monthly Mag. ii, 1865, p. 98; Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 990.

The type-example is completely shining dark red-brown with the following black patches:—Along the middle of pronotum an elongate patch; scutellum black; on each elytron across the base one on humerus and the other on the convexity, across postbasal area two patches corresponding in position to the basal ones, across preapical area two more in corresponding positions, in the type-example these are fused into a transverse band but still retain evidence of their original nature as individual spots. There is considerable variation in the coloration and the spots, from a pale brown shade without any spots at all to a condition in which the elytra are completely black ; between these two extremes any or most of the spots may be absent or undergo reduction in size or they may increase in extent, fusing with each other transversely or longitudinally by spurs or extensions from one fused pair to another. All modifications could be derived from the three-pair basis on each elytron. The pronotal patch may extend considerably over the surface or may be absent: it seems that the variation of this patch has no correlation with the reduction or extension of the elytral spots. The scutellum varies from the general colour of the body to black.

Length, 9·5–10 mm. ; *breadth*, 5·5–6 mm.

Distribution. SIAM (type-locality). EASTERN HIMALAYAS : Mungpu. ASSAM : Cachar. BURMA : Karen Mts., v.–xii. 1888 (*Fea*) ; Ruby Mines (*Doherty*) ; Momeik (*Doherty*).

Type in the British Museum.

Genus **STETHIDEA** Baly.

Stethidea Baly, Ent. Monthly Mag. (2) i, 1890, p. 13.

GENOTYPE, *Doryida balyi* Duvivier.

This is a monotypic genus.

Body oblong, nearly as broad at base as towards the apex.

Head together with the eyes narrower than the prothorax ; upper surface moderately convex, smooth, sparsely punctate ; frontal tubercles not well developed as in *Doryida* and also widely separated from each other by the wedge-shaped posterior portion of the clypeus, depressed in the middle ; clypeus generally raised, between each side and the anterior margin of the eye is a channel in which lies the first segment of antenna when in repose. Eyes convex but not very strongly. Antenna somewhat stouter towards the apex, extending to the humerus or a little beyond ; as in *Doryida* the roots of antennæ are far apart, being nearer the eyes ; first segment stout and club-shaped ; second and third short, nearly equal to one another ; fourth about twice as long as second ; fifth shorter than fourth ; from the fifth the segments are nearly equal to one another ; in some aspects apical five or six segments have a flattened appearance ; first three segments almost hairless, shining, rest of the segments thickly covered with short hairs. *Prothorax* much broader than long, somewhat narrowed towards the front, front margin widely concave, hind margin slightly sinuate ; each side gently rounded, margined and reflexed ; anterior angles considerably thickened, posterior angles obtuse, slightly thickened, each corner with a seta-bearing pore ; upper surface convex from side to side, smooth, sparsely but distinctly punctate, on each lateral area nearer the side a shallow depression, it is sometimes difficult to see this feature, it must be especially looked for by holding the insect at various angles. *Scutellum* triangular with the apex rounded, surface smooth and impunctate. *Elytra* broader than the prothorax ; upper surface with the humerus prominent, unlike *Doryida* the basal area on each side of scutellum not convex, moderately closely covered with distinct and well-impressed punctures. *Underside* sparsely covered with fine hairs ; epipleuron abruptly narrowed near the middle, continued to the apex, a few punctures along the outer margin, inner border sharply margined. Mesosternum peculiarly formed, the anterior process of metasternum fitting into it. Legs not slender, not long, hind legs somewhat longer than either the middle or front legs ; first segment of tarsus somewhat longer than second, third bilobed, claw-segment projecting beyond the bilobed segment ; claws appendiculate.

Distribution. ASSAM. BURMA. ANDAMAN ISLANDS. MALACCA.

401. **Stethidea balyi** (Duvivier).

Doryida balyi Duviv., Stett. Ent. Zeit. xlvi, 1885, p. 394.

Completely rich shining brown to red-brown with the following pattern of black spots :—On the pronotum a small, squarish spot in the middle near the base, a smaller one in the same longitudinal line on the front area, in some cases two lateral spots (one on each side), sometimes these become larger and coalescing with the median spot produce a patch ; in some cases all spots may be absent. On each elytron along a line on each side of the suture four round spots, the first basal, second median, third preapical, fourth apical, basal largest, second smaller than first, third smaller than second, third and fourth equal, in some cases fourth absent ; along the marginal area three spots, first behind the humerus, second postmedian, third situated on the apical bend, first larger than second, second and third equal, each of these spots situated a little behind the subsutural spots ; when all spots are present each elytron contains seven spots. In some varieties the elytra are completely without spots. On the underside one patch on side of metasternum and one on first abdominal segment, sometimes on the following sternite also ; in some cases underside completely without spots.

Length, 7·5 mm. ; *breadth*, 4·75 mm.

Distribution. ASSAM : Patkai Mts. (*Doherty*). BURMA : Momeik (*Doherty*). ANDAMAN ISLANDS. MALACCA (type-locality).

Type in the British Museum.

Genus **LEPTARTHRA** Baly.

Leptarthra Baly, Journ. of Ent. i, 1861, p. 202 ; Cist. Ent. ii, 1879, p. 454 ; Chapuis, Gen. Col. xi, 1875, pp. 224 & 227 ; Harold, Stett. Ent. Zeit. xli, 1880, p. 145 ; Fairmaire, Ann. Soc. Ent. France, lviii, 1889, p. 77 ; Weise, Tijdschr. Ent. lxv, 1922, p. 69.

GENOTYPE, *Leptarthra abdominalis* Baly. Fixed by Baly.

Body broad, moderately large, ovate, widened behind the middle.

Head together with the eyes fitting well in the emargination of the front margin of the prothorax ; upper surface not very convex, generally punctate and somewhat wrinkled, a median longitudinal impressed line continued between the frontal tubercles to the posterior portion of the clypeus ; frontal tubercles not developed, deeply depressed between them, depression and surrounding area much wrinkled ; clypeus raised longitudinally along the middle, on each side of the raised part surface depressed and strongly wrinkled, front margin also raised, the raised part rounded ; labrum broader than long, narrowed in front and with the border emarginate ; maxillary palpus long, penultimate segment swollen, apical small and conical. Eyes small. Antenna fine, extending nearly to the apical area ; first segment club-shaped, club very thick ; second short, rounded ; third longer than second ; first three segments smooth, polished, with only a few hairs ; from the third all segments thickly covered with greyish hairs ; fourth much longer than third ; fifth somewhat shorter than fourth ; from the fifth the segments are nearly equal to one another. *Prothorax* broader than long, front margin widely emarginate, hind margin somewhat sinuate ; each side somewhat oblique, gently rounded, margined, strongly reflexed, the reflexed concave surface strongly wrinkled ; anterior angles somewhat drawn forwards, thickened, posterior angles obtuse, each corner having a seta-bearing pore ; upper surface very uneven, three deep holes, one on each side and the other in the middle in front of the base, there are other minor depressions which are not always present, sparsely and finely punctate, some punctures larger than others. *Scutellum* triangular with the apex rounded and surface smooth and impunctate. *Elytra* much broader at base than the prothorax ; humerus prominent with the summit finely punctate ; upper surface convex, closely, confusedly and strongly punctate ; sides strongly but narrowly reflexed. *Underside* sparsely covered with fine hairs ; epipleuron gradually narrowed behind the middle, continued to the apex, inner margin sharply raised and sinuate. Legs moderately stout, not very long ; hind leg somewhat longer than either the middle or the front leg, tarsi broad, first segment longer than the second, third deeply bilobed, claw-segment projecting much beyond the bilobed segment ; claws appendiculate.

Distribution. INDIA. CHINA. FORMOSA.

The above description is based on the genotype.

402. **Leptarthra abdominalis** Baly.

Leptarthra abdominalis Baly, Journ. of Ent. i, 1861, p. 203 ; id., Cist. Ent. ii, 1879, p. 455 ; Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 441.

General colour black, elytra brown.

Head, prothorax, breast, legs and first three segments of antenna all with a blue component ; in some individuals this is more dominant and in others the background colour, which is generally black, is more in evidence ; this is especially so on the breast and legs. Very often there is a purple sheen. Scutellum bronze. The metallic colours are always shining. From the third segment onwards the antennæ dull black. Situated posteriorly on the inner margin of each eye a round red-brown spot.

Length (type-example), 10 mm. ; *breadth*, 7 mm. The examples before me range from a large example, *length*, 10·5 mm., *breadth*, 7·5 mm., to a small example, *length*, 9 mm., *breadth*, 6 mm.

Distribution. EASTERN HIMALAYAS : Mungpu, Darjeeling.

Type in the British Museum.

403. **Leptarthra fasciata** Jacoby.

Leptarthra fasciata Jac., Nov. Zool. 1894, p. 314.

General colour black, brown above.

Head bluish-black, antennæ black ; pronotum with a transverse violaceous band not extending to either side ; scutellum black ; each elytron with three violaceous bands : one across the base, a second premedian and the third post-median, the latter two more slender, and none of these bands extending to the sides ; in addition three apical violaceous spots, sometimes absent.

Head impunctate. Antenna long and slender ; third segment twice as long as the second. *Prothorax* subquadrate, one-half broader than long ; sides straight at base, slightly sinuate at the middle, the angles distinct but not produced ; upper surface sparsely punctate at the sides, two transverse depressions, one near the anterior margin and the other near the posterior, and on each side a smaller depression. *Elytra* strongly, confusedly but not very closely punctate.

Length, about 10 mm.

Distribution. NORTH MANIPUR.

Type location unknown to me.

There is a resemblance between this species and *Merista fraternalis* Baly and *M. quadrifasciata* Hope. In the latter species the claws are bifid.

The above description is taken from Jacoby's original in English.

404. **Leptarthra collaris** Baly.

Leptarthra collaris Baly, Cist. Ent. ii, 1878, p. 382.

Resembles the genotype, but more constricted behind the shoulders, so that the elytra seem widened behind. General colour shining black, third to eleventh segments dull brownish-black, pronotum yellow-brown, scutellum black, elytra dark red-brown with a purplish sheen, on each elytron a somewhat oblique fascia from the base to a short distance on the basal area situated on the inner side of the humerus, a large roundish spot a short distance behind the humerus and on the same transverse line towards the suture a smaller roundish spot, all spots blackish with a greenish sheen. Posteriorly situated on the inner margin of each elytron a red-brown round spot.

Head: upper surface impunctate. Antenna extending nearly to the apical area of elytron, becoming thinner towards the end; second segment nearly equal to third; fourth nearly four times longer than third; fifth somewhat shorter than fourth; from the fifth the segments are nearly equal to one another. *Prothorax*: upper surface not strongly convex, uneven, smooth, impunctate except for a few punctures on lateral area in front, with shallow depressions on each side near the base; each side concave in the basal portion becoming convex as the apex is approached, where it is strongly produced forwards, the inner surface being concave; this structure of the lateral margin gives the pronotum a distinctive character. *Scutellum* with the apex narrowly rounded and surface smooth, impunctate. *Elytra* confusedly and strongly punctate. *Underside*: epipleuron somewhat narrowed behind the middle, continued to the apex, surface slightly convex.

Length, 11·5 mm.; *breadth* across the widest portion, 7 mm. *Length* (a smaller example), 9·5 mm.; *breadth*, 5·5 mm.

Distribution. WESTERN HIMALAYAS: Murree, Thobba, Chumba.

Type in the British Museum.

405. **Leptarthra ventralis** Harold.

Leptarthra ventralis Har., Stett. Ent. Zeit. xli, 1880, p. 145.

Shining; above black with blue predominating, prothorax uniformly convex without impression, elytra almost smooth and very sparsely punctate; underside, including the legs, blue with black predominating, abdominal segments brown.

Length, 9 mm.

Distribution. East Indies.

I have not seen the type of this species. The above is a translation of the original description in Latin.

Genus **APLOSONYX** Duponchel & Chevrolat.

Aplosonyx Dup. & Chev., in d'Orbigny, Dict. Univ. Hist. Nat. (original edition) ii, 1842, p. 17; Chapuis, Gen. Col. xi, 1875, pp. 224, 226.

Berecyntha Baly, Ent. Monthly Mag. ii, 1865, p. 98; Chapuis, Gen. Col. xi, 1875, p. 226.

Haplosonyx Baly, Cist. Ent. ii, 1879, p. 452.

Haplonyx Jacobson, Horæ Soc. Ent. Ross. xxix, 1895, p. 555, Anm.

Genotype, *Galleruca albicornis* Wiedemann (Java). Germar, Mag. Ent. iv, 1821, p. 175.

Body large, massive, oblong. Elytra generally shining blue, blue-green or green and other parts differently coloured, but from our regions some species may have entirely brown upper side.

Head together with the eyes distinctly narrower than the prothorax; upper surface towards the vertex convex, generally punctate and with median longitudinal channel, inclined towards the front; frontal tubercles well developed, a deep median channel between them; clypeus flattened, surface generally impunctate; labrum somewhat broader than long; mandibles very large compared with the size of the labrum; maxillary palpus long, not swollen; labial palpus well developed. Eyes strongly convex, placed on a slightly raised portion. Antenna not very long nor very robust, generally extending to the middle of elytron; generally the three basal segments shining, the rest dull and thickly covered with short hairs; first segment long and cup-shaped; second small and rounded; in the genotype the relative lengths of the remaining segments are as follows:—Third slightly more than twice as long as second; fourth much longer than third; fifth somewhat shorter than fourth; sixth slightly shorter than fifth; seventh slightly shorter than sixth; eighth slightly shorter than seventh; eighth, ninth and tenth equal; eleventh somewhat longer than tenth and bluntly pointed at the apex. *Prothorax* nearly twice as broad as long: front margin almost straight, basal margin slightly bisinuate; constricted towards the base, convex before the middle, margins somewhat explanate and reflexed; anterior angles thickened, posterior acute, each corner with a large seta-bearing pore, anterior ones being larger; upper surface smooth, with depression, punctate. *Scutellum* triangular, moderately large, apex and sides roundly moulded, surface smooth, in the genotype very finely and sparsely punctate. *Elytra* much broader at base than the prothorax, on each side of the scutellum a certain area raised; humerus strongly raised, not punctate, between these two raised places a deep longitudinal depression and behind the basal raised area a shallower transverse depression; parallel-sided, slightly narrowed towards the apex, somewhat constricted behind the humerus. These raised areas and the convex humerus together, when considered in relation to the breadth of the prothorax, give the fore-part of the body a well moulded and square-shouldered appearance. Lateral margin somewhat explanate and reflexed in the genotype; upper surface confusedly and moderately closely punctate; punctures well impressed, somewhat larger in middle area, becoming finer towards the apex. *Underside* sparsely covered with fine hairs, closer and thicker on the legs; in the genotype epipleuron in the basal portion very broad, in the apical portion very narrow, otherwise of nearly uniform breadth, surface punctate, in places somewhat rugose. Legs long, slender; hind tibia somewhat longer than either the middle or front tibia, first segment of hind tarsus slightly longer than the corresponding segment of either the middle or front tarsus, second segment of tarsus shorter than first, third deeply bilobed, claw-segment long and projecting much beyond the bilobed segment; claws appendiculate.

Distribution. INDIA. BURMA. JAVA. BORNEO. SUMATRA. CELEBES. PHILIPPINE ISLANDS. INDO-CHINA. CHINA.

Key to the Species.

1.	Elytra unicoloured	2.
	Elytra with more than one colour........	10.
2.	Colour of elytra blue, green or violet, or a mixture of these tints	3.
	Colour of elytra different shades of brown.	4.
	Colour of elytra red, rest black, central portion of metasternum and abdominal sternites brown; 10×6 mm.	*A. rubra* sp. n., p. 620.
3.	Elytra with a mixture of blue, green or violet; pronotum with four raised areas in front of the median transverse line; 14·25–18×6·25–9 mm.	*A. chalybæus* (Hope,) [p. 614.

	Elytra violaceous; pronotum without such raised areas; 10 mm. long.	*A. sublævicollis* Jac., [p. 615.
4.	Scutellum black; 9–9·5 × 5–6 mm.	*A. scutellatus* Baly, [p. 616.
	Scutellum not black	5.
5.	Entirely brown or testaceous	6.
	Body brown, legs or some portions of underside black	7.
6.	Upper surface somewhat wrinkled and with a few punctures; prothorax not well constricted towards the base; antenna hardly extending to the middle of elytron; 8·75 × 5 mm.	*A. indicus* Jac., p. 616.
	Upper surface impunctate, not wrinkled; prothorax constricted towards the base; antenna extending to two-thirds of the elytron; about 6 mm. long	*A. inornatus* Jac., [p. 617.
7.	Insect large, never less than 12 mm. long.	8.
	Insect always less than 12 mm. long	9.
8.	General colour shining dark to pale brown; two or three apical segments of antenna (sometimes), abdominal sternites and legs black; 12–14 × 7–8 mm.	*A. robinsoni* Jac., [p. 618.
	General colour warm brown, not shining; antennæ and legs black; 12 × 6·5 mm.	*A. duvivieri* Jac., [p. 618.
9.	General colour moderately shining brown, antennæ and legs black; 10·25 × 5·5 mm.	*A. orientalis* Jac., [p. 619.
	Upper side pale brown, antennæ piceous, sides of breast, tibiæ and tarsi blackish, legs sometimes entirely blackish; 9 × 5 mm.	*A. varipes* Jac., p. 619.
10.	Nearly one-half of the elytral surface deep violet, otherwise brown; two apical segments of antenna yellowish; 7·5 × 4 mm.	*A. mouhoti* Baly, p. 621.
	Elytra with a pattern of piceous and yellowish-white colours; 5·5 × 3 mm.	*A. ornata* Jac., p. 622.

406. **Aplosonyx chalybæus** (Hope).

Galleruca chalybæus Hope, in Gray, Zool. Miscell. 1831, p. 28.
Haplosonyx chalybæus Hope, Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 440; Baly, Cist. Ent. ii, 1879, p. 452.
Aplosonyx elongata Baly, Trans. Ent. Soc. Lond. (3) i, 1863, p. 624.

Resembles the genotype in form and structure. Elytra shining blue-green, purple, or a mixture of these colours, but no component is present in a pure state, the rest shining red-brown, sometimes the red is not very evident; fifth to eighth segments of antenna and apices of tibiæ and tarsi black with a metallic sheen; underside not shining as the upper surface.

Head: upper surface background finely shagreened, sparsely and finely punctate; frontal tubercles broad, flattened, a depression behind them. Eyes not strongly convex, raised area on which each eye is placed rather prominent. Antenna as in the genotype. *Prothorax* more strongly constricted towards the base than in the genotype and consequently each lateral margin more strongly convex before the middle, a certain area on inner side of this strongly convex margin is conically raised, between it and the middle is another smaller conically raised area, so that in front of the transverse middle line are four raised areas. Across the middle a transverse depression which in some examples is less accentuated in the middle portion, the depression always containing large strongly impressed punctures, rest of the area, seen under a high magnification, very finely and sparsely punctate. *Scutellum* with the apex truncate and the surface finely shagreened and impunctate. *Elytra*: each elytron with about eight irregular double rows of punctures, counting the rows from the suture; the punctures are deeply impressed holes, becoming very fine and confused on the apical area. *Underside*: inner margin of epipleuron strongly raised and rounded.

Length, 14·25–18 mm.; *breadth*, 6·25–9 mm.

Distribution. Along the Himalayan ranges from Nepal (type-locality) to Burma. NEPAL. SIKKIM. ASSAM. BURMA.

Types in the British Museum.

407. **Aplosonyx sublævicollis** Jacoby.

Haplosonyx sublævicollis Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 218.

General colour testaceous; tibiæ and tarsi black; elytra metallic violaceous.

Head: upper surface impunctate with a deep depression between the eyes. Three basal segments of antenna shining, the rest pubescent and dull; third segment twice as long as second; fourth twice as long as third. *Prothorax* twice as broad as long; sides constricted at base, rounded before the middle; posterior margin rather strongly rounded; upper surface with a deep transverse depression on each side, the interior of depression sparsely punctate, the rest impunctate. *Elytra*: the basal portion hardly raised, depressed near the scutellum; upper surface strongly and irregularly punctate, punctures sparser and finer towards the apex and in places partially arranged in double or treble rows.

Length, about 10 mm.

Distribution. TENASSERIM: Thagata (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

408. **Aplosonyx scutellatus** Baly.

Haplosonyx scutellatus Baly, Cist. Ent. ii, 1879, p. 452; Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 219; Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 440.

Resembles the genotype in form and structure but smaller. Entirely brown; antennæ, scutellum, breast and legs black.

Head: upper surface impunctate, depression behind the frontal tubercles crowded with punctures, some of which have strayed away, as it were, on the surrounding area; frontal tubercles broad, not strongly raised, with the median longitudinal channel deep and broad. Eyes strongly convex. Antenna moderately stout, extending to the middle of elytron; second and third short, the latter nearly twice as long as the former; fourth much longer than third; fourth and fifth nearly equal; sixth slightly shorter than fifth; seventh slightly shorter than sixth; from fourth to seventh on the underside a shining ridge; eighth shorter than seventh; eighth to tenth nearly equal to one another, tenth may be slightly shorter, eleventh somewhat thinner. *Prothorax*: upper surface with a shallow depression on each side of the middle containing five or six large punctures, elsewhere very finely and sparsely punctate. *Scutellum* with the apex and surface smooth and impunctate. *Elytra*: punctures on the upper surface tend to be arranged in groups of longitudinal series, towards the apex punctures finer and sparser. *Underside*: epipleuron narrowing only towards the apex, inner margin raised, a widely spaced series of punctures along the outer margin.

Length, 9–9·5 mm.; *breadth*, 5–6 mm.

Distribution. ASSAM: Patkai Mts. (*Doherty*); Sadiya (*Doherty*).

There are two examples in the British Museum from the Ruby Mines, Burma, which resemble this species but differ in having the pronotum pitch-brown; the colour shows signs of being discharged. I refer these two examples to this species.

409. **Aplosonyx indicus** Jacoby.

Haplosonyx indicus Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 279.

Resembles the genotype in form and structure but smaller and not massive. Completely brown.

Head: interocular space including frontal tubercles very sparsely covered with a few well-impressed punctures; upper surface somewhat wrinkled, depressed behind the frontal tubercles; the latter transverse and broad but not well raised. Antenna moderately stout, hardly extending to the middle of elytron; third segment somewhat longer than second; fourth about three times as long as third; fifth shorter than fourth ; fifth and sixth nearly equal ; seventh slightly shorter than sixth ; eighth slightly shorter than seventh ; eighth to eleventh nearly equal to one another. *Prothorax* not so constricted towards the base as in the genotype ; sides slightly oblique, margins strongly reflexed ; on each side of the middle a shallow depression containing some well-impressed punctures, elsewhere very finely and sparsely punctate. *Scutellum* with the apex acute and surface impunctate. *Elytra* : on each elytron the punctures are arranged in single rows, but the first two rows from the suture have been duplicated for a short distance, and near the middle on each side of the suture the punctures are somewhat confused, otherwise the rows are fairly regular from base to the apex ; the punctures are not very closely placed. *Underside* : epipleuron narrowing only towards the apex, inner margin raised and rounded, a series of fairly widely spaced punctures along the outer margin.

Length, 8·75 mm. ; *breadth*, 5 mm.

Distribution. BOMBAY : Belgaum (Andrewes Coll.).

Type in the British Museum.

410. **Aplosonyx inornatus** Jacoby.

Haplosonyx inornatus Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 964.

Entirely obscure testaceous.

Head : upper surface impunctate with a depression at the vertex ; maxillary palpus robust. Eyes strongly convex. Antenna very robust, extending to two-thirds the length of the elytron ; three basal segments shining, the rest dull ; second and third segments small and equal ; fourth longer than third. *Prothorax* twice as broad as long ; sides rounded before the middle, the basal portion rather concave ; anterior angles oblique, posterior dentiform ; upper surface with a very deep oblique depression on each side, strongly but sparsely punctate in the depressions, the rest impunctate. *Elytra* without basal elevation, moderately deeply depressed on the inner side of the humerus ; each elytron with about ten rows of deep punctures, the rows more closely approximated on the lateral areas than on the middle ; lateral margin strongly thickened.

Secondary sexual characters. In ♂ the antennæ are robust, in ♀ much thinner and shorter.

Length, about 6 mm.

Distribution. BURMA : Karen Mts. ; Pegu, Palon (*Fea*).

Type in the Genoa Museum.

I have not seen the type of this species. The above description is taken from Jacoby's original in English.

411. **Aplosonyx robinsoni** Jacoby.

Haplosonyx robinsoni Jac., Fasciculi Malayenses, ii, App. 1905, p. vi.

Resembles the genotype in form and structure. General colour shining dark to pale brown; two or three apical segments of antenna, breast and abdominal sternites and legs black. The examples from our regions differ from the type-example (Siamese Malay) in not having the elytral punctures confused and in the partial discharge of colour from the parts that are black in our examples. In my opinion these variations may be considered to fall within the limits of a species.

Head: upper surface sparsely punctate; frontal tubercles oblique. Eyes strongly convex. Antennæ fairly stout, extending to the middle of elytron, the relative lengths of the segments similar to those in the genotype. *Prothorax*: posterior corner somewhat produced, and the seta-bearing pore very large; on each side of the middle is a moderately deep depression, in the latter punctures more numerous than elsewhere. *Scutellum* smooth, impunctate, apex narrowly rounded. *Elytra*: each bears irregular rows of punctures which tend to become obliterated on the apical area, the rows are sometimes single, sometimes double and sometimes several rows together form a row; in some examples the interstitial punctures, increasing in numbers, tend to obliterate the tendency to longitudinal serial arrangement. *Underside*: epipleuron with the inner margin raised and rounded, surface impunctate.

Length, 12–14 mm.; *breadth*, 7–8 mm.

Distribution. BURMA: Momeik (*Doherty*), five examples in the British Museum. SIAMESE MALAY (type-locality). PERAK. SUMATRA.

Type in the British Museum.

412. **Aplosonyx duvivieri** Jacoby.

Haplosonyx duvivieri Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 130.

Body oblong but not so massive as the genotype, which this species resembles in other respects. Entirely warm brown except the antennæ and legs which are black; not shining as the genotype.

Head: upper side convex, sparsely punctate; frontal tubercles broad, transverse; maxillary palpus swollen with the apical segment short, conical and imbedded in the penultimate segment. Eyes strongly convex with the base prominent. Antennæ as in the genotype. *Prothorax*: posterior corners acutely produced with the seta-bearing pore large; upper surface with a moderately deep depression on each side of the middle ; in the depressions are a few large strongly impressed punctures, elsewhere finely and very sparsely punctate. *Scutellum* with the apex acute and surface smooth but with a few fine obsolescent punctures. *Elytra* : confusedly, strongly and closely punctate, punctures large and well impressed, becoming finer towards the apical area ; the centre of each puncture very dark ; there is hardly even a suggestion of an arrangement in longitudinal series near the suture on the basal area. *Underside* : epipleuron with the inner margin raised and rounded, and a row of punctures along the outer margin, punctures not very close to each other.

Length, 12 mm. ; *breadth*, 6·5 mm.

Distribution. ASSAM : Khasi Hills (Andrewes Coll.).

Type in the British Museum.

413. **Aplosonyx orientalis** Jacoby.

Haplosonyx orientalis Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 962.

Resembles the genotype in form and structure but smaller and less massive. General colour moderately shining brown except the antennæ and legs, which are black.

Head : upper surface convex, impunctate except for a few indistinct punctures in front ; frontal tubercles broad, transverse. Eyes strongly convex, with the base raised. Antennæ as in the genotype. *Prothorax* : on each side of the middle of upper surface a large transverse depression containing deeply impressed large punctures, elsewhere very finely and sparsely punctate ; posterior corners somewhat produced, each containing a large seta-bearing pore. *Scutellum* with the apex acute and surface impunctate. *Elytra* : on each elytron the punctures are arranged in irregular groups of longitudinal series separated by an impunctate line ; there are four such lines, though not fully developed, from the base to the apex of elytron ; punctures sparser and finer on the apical area. *Underside* : epipleuron narrowed only towards the apex, inner margin sharply raised.

Length, 10·25 mm. ; *breadth*, 5·5 mm.

Distribution. BURMA : Karen Mts., v.–xii. 1888 (*Fea*).

Type in the British Museum.

414. **Aplosonyx varipes** Jacoby.

Haplosonyx varipes Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 964.

Resembles the genotype in form and structure. Entirely pale brown on the upper side ; antennæ piceous ; sides of breast, tibiæ and tarsi blackish, sometimes the entire leg blackish.

Head : upper surface finely and sparsely punctate ; frontal tubercles transverse and broad, behind them a depression ; maxillary palpus with the apical segment moderately long and conical. Eyes strongly convex. Antenna moderately stout, hardly extending to the middle of elytron in the female, a little longer in the male ; third segment twice as long as the second in the female, only slightly longer than second in the male ; in both sexes fourth much longer than third ; fifth shorter than fourth ; from fifth to eighth each segment shorter than the previous one ; ninth slightly shorter than eighth in the female, equal to eighth in the male ; in both sexes ninth, tenth and eleventh equal to one another ; in the female they are somewhat stouter and shorter than in the male. *Prothorax* : all four corners produced, anterior ones more so ; upper surface with a median transverse channel containing fairly large and well-impressed punctures, elsewhere very finely and sparsely punctate. *Scutellum* with the apex acute and surface impunctate. *Elytra* : punctures on the upper surface roughly arranged in groups of longitudinal series separated by smooth lines ; these are so irregular that they cannot be counted, but the impression of the serial arrangement persists. *Underside* : epipleuron narrowing only towards the apex, inner margin raised, a row of widely spaced punctures along the outer margin.

Secondary sexual characters. In ♂ the antenna is slightly longer, and the last visible abdominal sternite is trilobed.

Length, 9 mm. ; *breadth,* 5 mm.

Distribution. Assam : Patkai Mts. (*Doherty*). Burma : Karen Mts. (*Fea*) ; Tenasserim (*Fea*) ; Rangoon ; Pegu. Tonking.

Type in the British Museum.

415. **Aplosonyx rubra** sp. nov.

Resembles the genotype but smaller. General colour black, elytra red, central portion of metasternum and abdominal sternites brown ; upper side shining.

Head : upper surface perfectly smooth and polished, sparsely punctate, punctures very fine but well impressed ; longitudinal division between the frontal tubercles wide and deep, the latter convex, broad, smooth and impunctate ; clypeus strongly convex, smooth and impunctate, with fine, erect, single hairs arising from near the base in front of the antennal root-cavities ; maxillary palpus swollen, with the apical segment small and imbedded in the penultimate segment. Eyes strongly convex. Antenna moderately stout, extending to the middle of elytron ; first three segments shining ; the rest dull, thickly covered with bristly hairs ; first segment strongly club-shaped; second small, round; third equal to second; these three segments with smooth surface and a few erect, single hairs: fourth about four times as long as third; fifth shorter than fourth; fifth, sixth, seventh and eighth, when seen dorsally, somewhat broadened at inner apical angle; eighth slightly shorter than seventh, three segments previous to eighth nearly equal; eighth to eleventh nearly equal, the latter bluntly pointed. *Prothorax*: anterior corners strongly produced, posterior slightly produced; lateral margin moderately broad and reflexed and strongly sinuate as in the genotype; upper surface smooth and very finely and sparsely punctate, on each side of the middle a depression containing one or two stronger punctures. *Scutellum* with the apex acute and surface smooth and impunctate except for a few very fine punctures. *Elytra*: each elytron with about ten irregular series of strongly impressed and comparatively widely spaced punctures, including a short scutellar row and the extreme marginal row; in addition to these large and strongly impressed punctures the whole surface is covered with very fine, indistinct and dark-centred punctures; humerus and a certain basal area moulded as in the genotype; lateral margins reflexed. *Underside*: epipleuron narrowing only towards the apex, surface smooth, very finely and sparsely punctate, inner margin sharply raised.

Length, 10 mm.; *breadth*, 6 mm.

Distribution. BURMA: Ruby Mines (*Doherty*).

Type in the British Museum.

Described from one example.

416. **Aplosonyx mouhoti** Baly.

Haplosonyx mouhoti Baly, Ann. Mag. Nat. Hist. (5) vi, 1879, p. 114.

Body oblong, narrowed towards the apex. Nearly one-half of the elytral surface deep violet, otherwise brown, scutellum brown; three basal segments of antenna brown, two apical segments yellowish, the rest blackish; upper side shining.

Head: upper surface sparsely punctate, punctures well impressed; the eyes are so strongly and abruptly convex that the neck behind them seems constricted; interocular space, including the frontal tubercles and antennal sockets, depressed; frontal tubercles broad and somewhat oblique; clypeus strongly raised; maxillary palpus swollen with the apical segment bluntly conical and imbedded in the penultimate segment. Antenna not very stout, extending a little beyond the middle of elytron; second and third segments very short and equal; fourth about five times as long as third ; fifth shorter than fourth ; from fifth to ninth each segment is slightly shorter than the previous one ; ninth, tenth and eleventh nearly equal to one another. *Prothorax* : the sides are not so strongly sinuate as in the genotype though somewhat convex before the middle, margins reflexed ; upper surface with a broad depression across the middle containing fewer punctures, otherwise fairly closely punctate, punctures large and strongly impressed ; anterior corners somewhat produced, posterior not at all and widely rounded. *Scutellum* with the apex acute and surface very finely punctate, each puncture having a fine white hair. *Elytra* with the humerus strongly raised, the basal area not so moulded as in the genotype ; upper surface confusedly and closely punctate, punctures well impressed, moderately large ; seen at certain angles one or two faint smooth longitudinal lines are visible. *Underside* : epipleuron narrowing only towards apex, inner margin sharply raised, surface with a sparsely spaced series of punctures along the outer margin.

Length, 7·5 mm. ; *breadth*, 4 mm.

Distribution. BURMA : Karen Mts. (*Doherty*). SIAM (type-locality).

Type in the British Museum.

The specimen from Karen Mts. differs from the type-example in being somewhat smaller, in having the last two segments (instead of one as in the type-example) light coloured and in having the elytral basal patch somewhat smaller.

It is possible that the position of the species in this genus will have to be revised when more material has been obtained.

417. **Aplosonyx ornata** Jacoby.

Haplosonyx ornata Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 963.

Generally resembles the genotype but much smaller. Head, prothorax, underside and legs dark brown and in places darker ; scutellum and a certain area around and behind it piceous, a large postmedian band piceous, suture throughout its length piceous or black, the portion of lateral margin corresponding to the postmedian band and a slight anterior extension of it piceous, the rest of the elytral surface, namely, humerus, area behind the basal scutellar patch and apical area, yellowish-white ; antennæ black ; upper and under surfaces shining.

Head : upper surface impunctate ; the eyes are strongly convex and so abruptly raised from the base that the neck behind the eyes seems constricted ; frontal tubercles broad, hardly raised, with the longitudinal median channel moderately deep. Antenna extending to the middle of elytron ; first three segments shining, sparsely covered with fine hairs, the rest dull and thickly covered with greyish hairs ; third small like the second though slightly longer ; fourth about four times as long as third, slightly bent in the middle ; fifth somewhat shorter than fourth ; fifth, sixth and seventh nearly equal to one another ; from the eighth the segments become somewhat thinner ; eighth slightly shorter than seventh ; eighth, ninth and tenth nearly equal to one another ; eleventh with the apex pointed and somewhat longer than tenth. *Prothorax* : the four corners sharply produced, the former more expanded in addition ; sides not so strongly constricted towards the base though somewhat convex before the middle ; the depression on each side of the middle is nearer the lateral margin, across the middle between the two depressions a band of some strongly impressed and fairly large punctures, otherwise the surface is impunctate. *Scutellum* with the apex acute and surface impunctate. *Elytra* : on each elytron eleven rows of punctures, including a sutural and a marginal row, next to the sutural row is a very short one, then the rows are regular from base to apex, the punctures being well impressed, the marginal row is along the reflexed surface. *Underside* : hind femur thickened but without the femoral organ, epipleuron narrowing only towards the apex, inner margin raised and surface along it concave, a sparsely spaced series of punctures along the outer margin.

Length, 5·5 mm. ; *breadth*, 3 mm.

Distribution. BURMA : Karen Mts., v.–xii. 1888 (*Fea*).

Type in the British Museum.

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The full titles of the various papers are given and the titles of the periodicals in which they have appeared are given in abbreviated form in accordance with the 'World List of Scientific Periodicals,' (1934). If in the earlier part of this work the abbreviations used are not exactly those of the 'World List,' it is because this part of my manuscript was ready before the 'World List' had been published, or, if published, was not then available to me.

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† See footnote on p. 470.

‡ The authorship of the genus *Aulacophora* is to be ascribed to Duponchel and Chevrolat, see p. 167.

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ALPHABETICAL INDEX.

All names printed in capital letters indicate families or subfamilies.

All names printed in italics are synonyms.

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When more than one reference is given, the page on which the description occurs is indicated by thickened numerals.

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PLATE I.

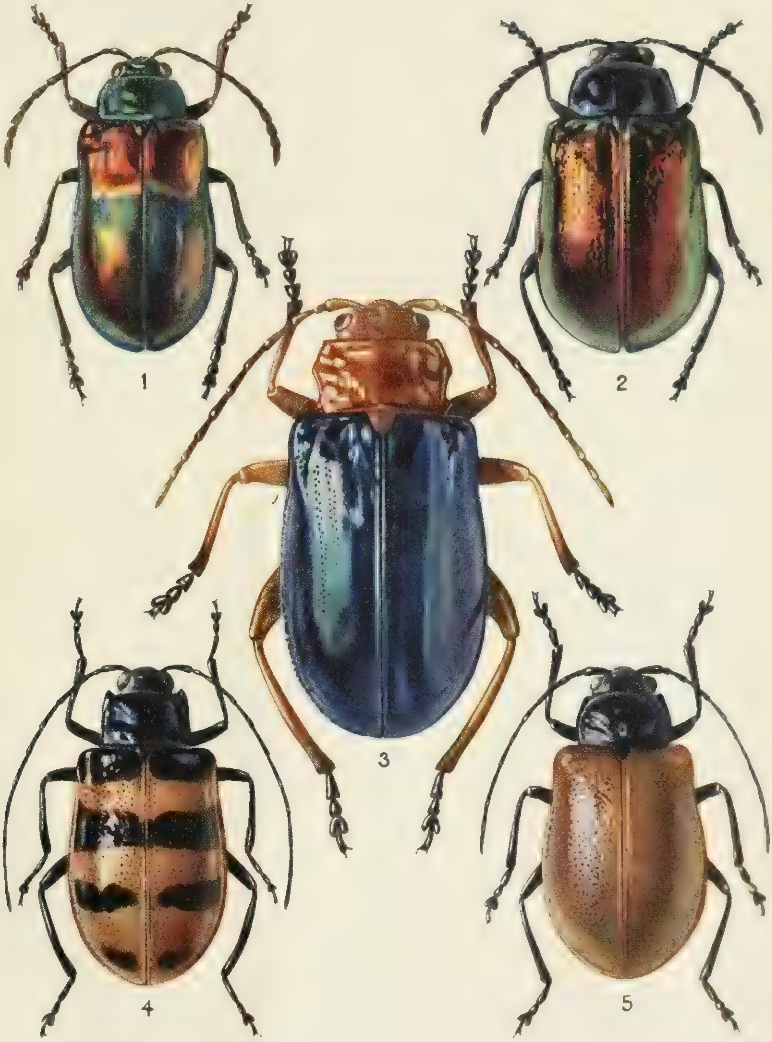
Fig. 1. *Periclitena vigorsi* (Hope).

2. *Gallerucida rutilans* (Hope).

3. *Aplosonyx chalybæus* (Hope).

4. *Merista fraternalis* (Baly).

5. *Leptarthra abdominalis* Baly.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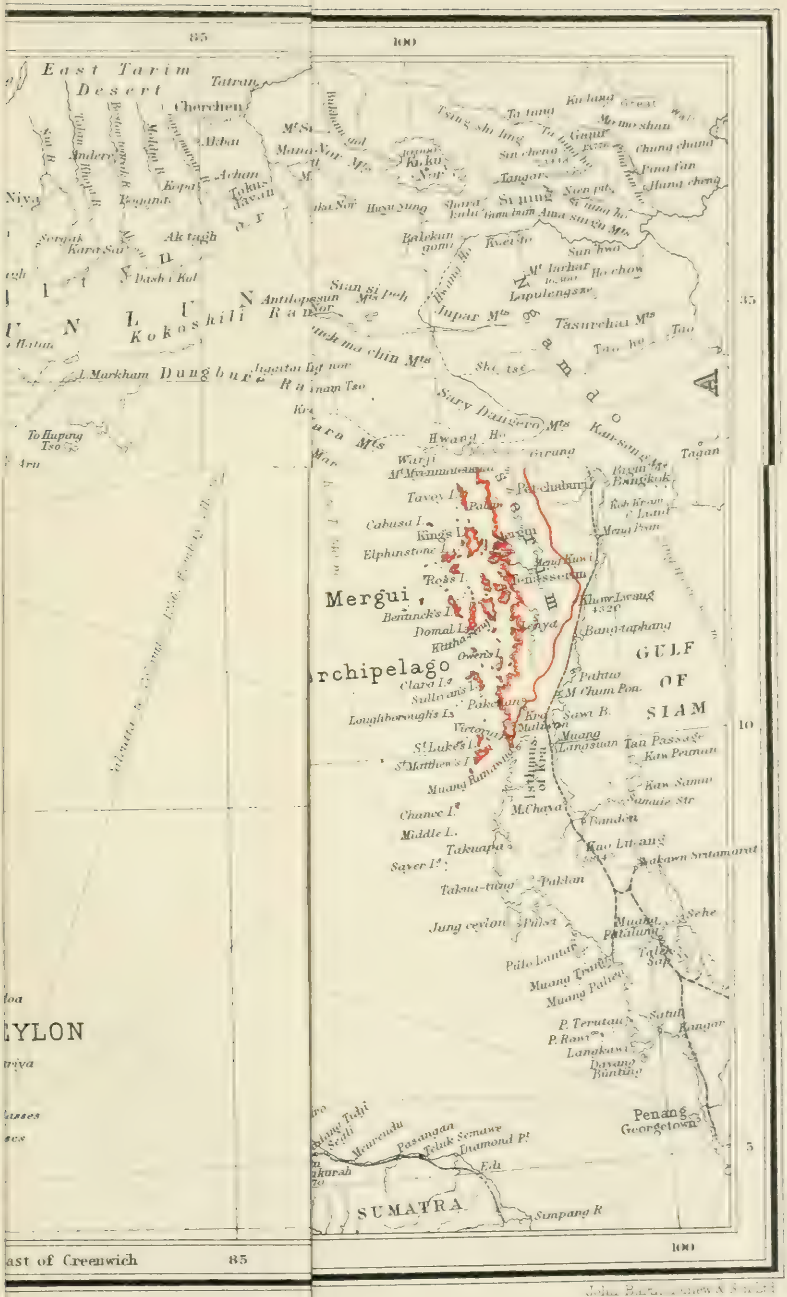

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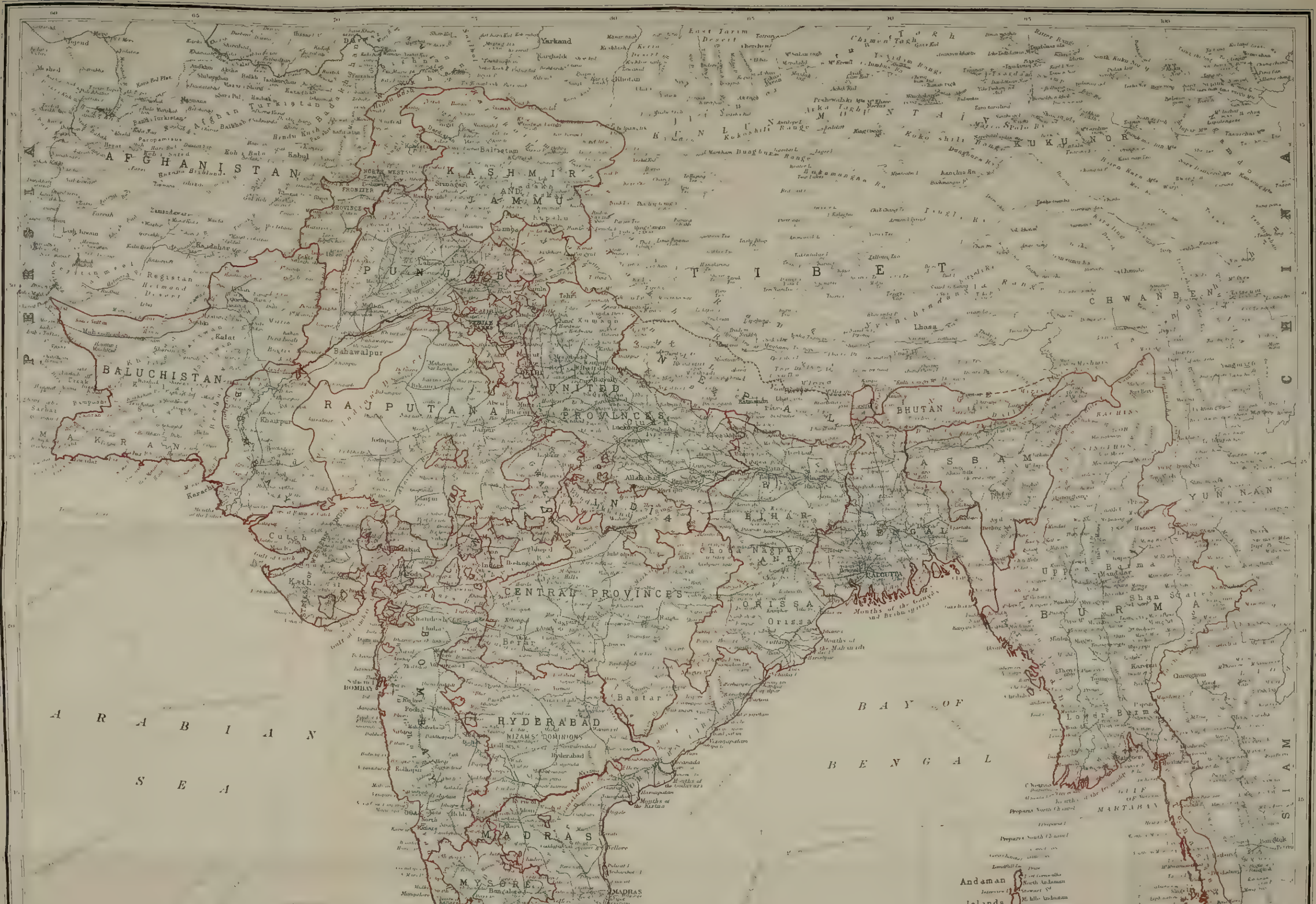

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